



The Conservative Teachings of Occlusion.

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Read before the Second District Dental Society, February, 1905.

The general theme of the evening being the discussion of the advisability of extraction of teeth to relieve crowded arches, and the subject being one of sufficient importance to warrant a whole evening being set aside for its sole consideration by this society of the Second District and affiliated societies, a rather serious responsibility devolves upon your essayist in his presentation of certain views upon this question radically different from those which have been commonly held heretofore, inasmuch as in our search for the truth, only that which will bear the closest scrutiny from a scientific standpoint, could be accepted as of any value among a body of professional men whose training has been almost entirely along scientific lines, both in college and society work.

Only in the last decade, and especially in the last half, has orthodontia made any advance in the attempted solution of its most perplexing as well as its most simple problems. Empirical methods of treatment of malocclusion obtained generally, and are too universally practiced to-day, because the underlying scientific principles have not been fully comprehended, or else they have been intentionally or unintentionally overlooked.

In the *Dental Cosmos* of January, 1904, Dr. E. C. Kirk makes a strong plea for the utilization of the scientific method in dentistry, and credits orthodontia with a very marked advance in progress since its prob-

ITEMS OF INTEREST

lems have been resolved into those of classified malocclusion, or in other words, since occlusion has been recognized as the basis of the science.

In no department of dentistry is it truer than in orthodontia that "the progress made is measurable by the degree to which it has used the scientific method."

As a representative of "the new school of orthodontia" as it has been styled, because of its advocacy of the comparatively new theories of occlusion as related to diagnosis and treatment in orthodontia, and consequent radical departures from old methods of treatment, it is my pleasure to present to you the conservative side of the question under discussion, meaning by the term conservative the methods of treatment and the theories of practice, which, in the attainment of the ideal, conserve all of the dental organs in the correction of malocclusion.

The Problem of Extraction.

Perhaps you will say that, with such a platform, extraction as a beneficial procedure in orthodontia, holds no place whatever; that we allow of no exception to the rule; but inasmuch as our standard is arbitrary and the highest possible to conceive, our results must be judged in comparison thereto, and their perfection or imperfection, in relation to the degree to which they approximate the ideal of normal occlusion.

An exception to the rule might be admitted, in a case in which the skill of the expert operator had been baffled in his efforts to produce the ideal without extraction; or through the advisability of performing in a few special cases the simplest and shortest operation possible out of consideration of the patient's health; or in cases of monstrosities of tooth dentition, such as extreme hypertrophy of alveolar processes.

The question of extraction is a difficult one, especially in the light in which it has been generally viewed, but it resolves itself into a comparatively simple problem from the standpoint of occlusion, consequent upon the recognition of the value of the individual tooth as a factor in the preservation of the integrity and regularity of the arches of teeth.

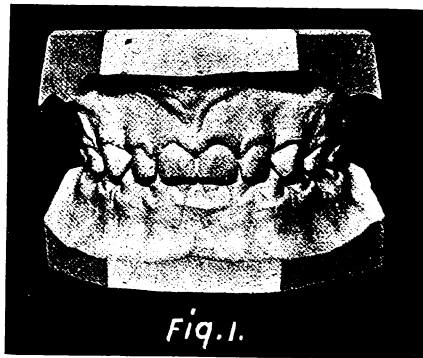
It must be presumed that the simplest laws of occlusion, such as the necessity for the full complement of teeth in order to preserve the integrity of the arches, separately, or in occlusion; the conformation in size and shape and the interdependence of one arch upon the other for its normal or malocclusion, together with the forces of cusp interdigitation, action and reaction of the arches of teeth in occlusion, are somewhat familiar to you, and they will receive only such reiteration as the context shall necessitate in the description of cause and effect in certain cases as shall follow which may require such explanation.

ORTHODONTIA

The Arches of the Temporary Teeth.

In order to have a logical and chronological succession of recorded observation of facts, let us begin with the study of the arch at its latest period before eruption of any of the permanent teeth, at a time when the deciduous teeth are all *in situ*, and certain physiological processes are about to take place subsequent to the shedding of these teeth and their replacement by the permanent set, these changes, according to the degree of perfection of their physiological performance of function, having much to do with the regularity or irregularity of the second dentition.

Many cases of malocclusion date their inception back to the time when these processes are taking place, and it will behoove us to take cog-



nizance of them in order that we may at least give assistance to these natural processes, if necessary to intervene, rather than to hinder or subvert them through ignorance of their normal function, and consequent ill-advised treatment of certain conditions which may present.

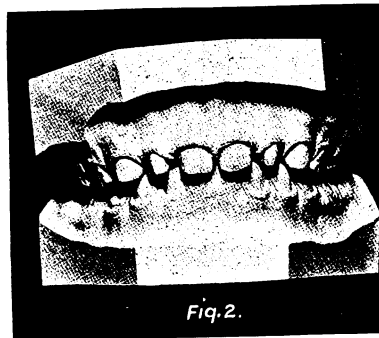
Fig. 1. Fig. 1 shows a perfect set of deciduous teeth, in correct occlusion, of a child of four years of age, at which time, all of the deciduous teeth are in position and accomplishing the function of mastication to the degree necessary for the nutrition of a child of this tender age.

The retention of these teeth until just before the appearance of their permanent successors is of so great importance in its effect upon the normal development of the arches of permanent teeth, that I wish to call attention to a few of the physiological changes attending the normal shedding of the deciduous teeth as well as to a few pathological changes attending the premature loss and prolonged retention of the same.

ITEMS OF INTEREST

One very important reason why the deciduous teeth should be retained until the period of their normal loss is that each tooth aids in the development of the arches of permanent teeth by its mechanical retention of the space for its permanent successor. The premature loss of one of the deciduous teeth not only causes its space to be closed up so that there is no room for its permanent successor, but also retards the development of the arch and usually is the initial cause of a more or less serious malocclusion of the permanent teeth.

The crowded dental arch has its origin often in the premature loss, by extraction or otherwise, of one or more of these deciduous teeth, and the question of extraction for regulating is one which is just as much concerned with the deciduous set of teeth as with the permanent.



Almost the first question that is asked by a parent consulting us about making room for the permanent teeth, is as to whether it is not best to extract one or more of the deciduous teeth to "make room" for the permanent teeth. The acquiescence by the dentist in the wisdom of this fallacious and pernicious idea has led to the wholesale extraction of these teeth for the purpose mentioned, with the result of producing many irregularities of the permanent teeth which would probably never have existed otherwise.

Coincident with the interstitial development of the alveolar process, in the anterior part of the mouth, to accommodate the erupting permanent incisors, there occurs the normal spacing between the deciduous incisors preceding their normal shedding.

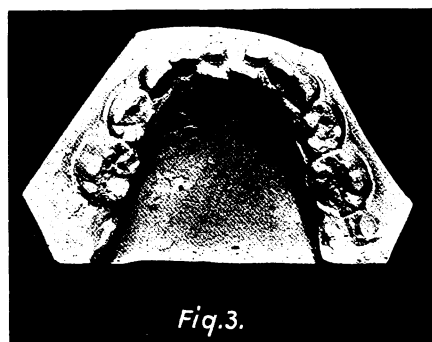
Fig. 2.

Fig. 2 illustrates the arches of deciduous teeth in occlusion just previous to the eruption of the permanent incisors in a boy six and a half years of age,

and is a case in which the anterior development of the process has taken place normally, as noted by the spacing between the deciduous incisors. When the jaws present this appearance anteriorly at this age, we know that in all probability the eruption of the permanent incisors will take place without crowding.

Fig. 3.

Fig. 3 illustrates the spacing between the deciduous central incisors incident to the eruption of the lower central incisors of the permanent set, but it will be noticed that there is no spacing between the laterals and centrals, and apparently no interstitial development for the accommodation of the permanent lateral incisors.



Although the space for the eruption of the permanent centrals is about secured, for some reason, the roots of the deciduous incisors did not absorb, and their prolonged retention has caused the lingual eruption of the permanent central incisors. Thus at this early age the service of the orthodontist is needed in order to assist in the development of the anterior part of this arch for the accommodation of the permanent teeth. Extraction of the deciduous centrals is of course indicated, but there is also necessary a simple operation for the moving into normal position of the two permanent centrals in lingual occlusion, and the care of the child until the assurance is given that the same accident will not happen to the permanent laterals, if necessary, increasing the space from cuspid to cuspid for their eruption.

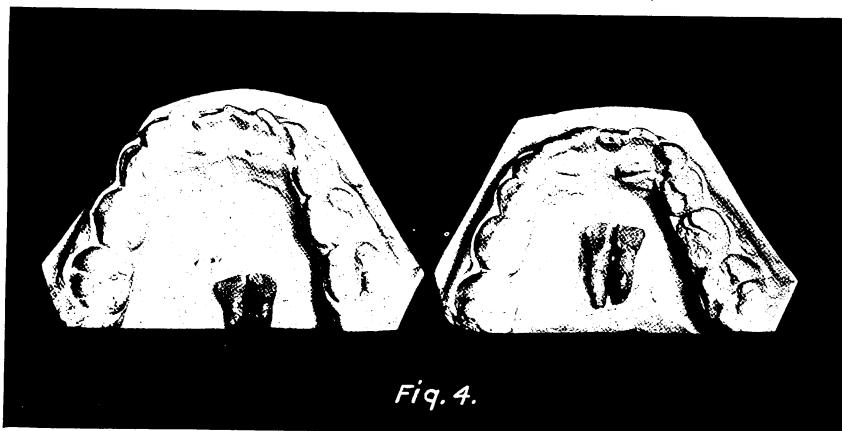
Fig. 4.

The two casts shown in Fig. 4 are typical of the earliest and most common forms of irregularities that present for treatment, and it is in this same class of cases that the extractionist covers himself with glory. In his desire to

ITEMS OF INTEREST

obtain room for the laterals erupting in lingual occlusion, the only method, occurring to his mind, for securing this space seems to be in extracting both the deciduous laterals and the cuspids since the deciduous lateral is considerably smaller mesio-distally than the permanent one, the enlargement of the process anteriorly to accommodate the permanent incisors, having failed to occur to his mind for some reason.

He may not take into account the fact that the permanent cuspid will need the space of its deciduous predecessor, or if he does, he thinks the necessity of the moment in providing space for the permanent laterals outweighs any argument for the conservation of these deciduous cuspids,



trusting to Nature to rectify any mistakes or errors in judgment which he may have made in the case.

In reality there is needed but a simple operation at this time, beyond the extraction of the deciduous laterals which have been retained too long, and that is the expansion of the arch anteriorly until the proper space for the permanent laterals has been secured, and then their gentle movement into their normal positions, the cuspids being retained in place. The only teeth extracted in the treatment of these cases were the deciduous laterals which may be seen fastened to the casts with wax, one set showing almost complete absorption of their roots, the other none.

Fig. 5 illustrates the case of a child seven years of age in which the deciduous laterals have been prematurely lost (cast on left) and the space for the normal eruption of the permanent laterals lost through contraction. The operation is in process of being performed as shown in cast on the right,

ORTHODONTIA

for developing the arch so that the permanent laterals may be liberated, the space having been regained, and the permanent laterals being gradually moved into their proper places in the arch.

By this treatment Nature is assisted in making the development anteriorly needed for the accommodation of these teeth, as well as providing more space for remaining permanent teeth erupting in the anterior part of the arch.

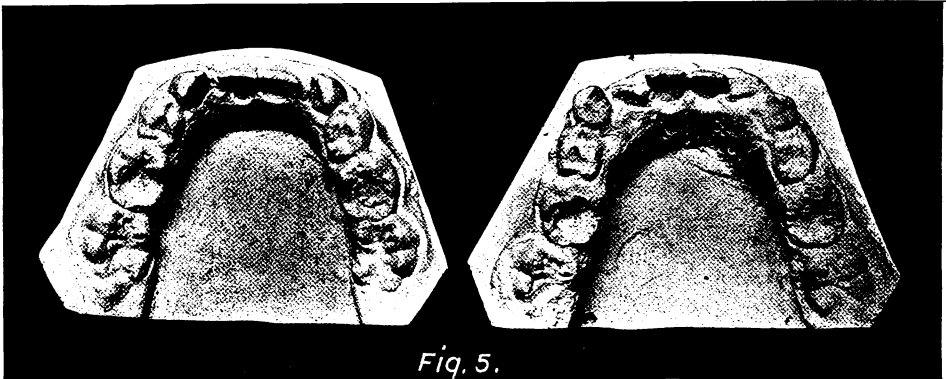


Fig. 5.

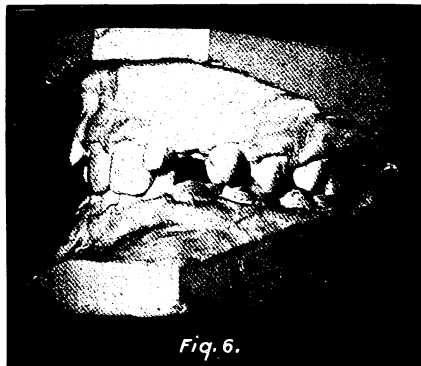


Fig. 6.

Fig. 6. An instance in which the deciduous cuspids have been prematurely lost through extraction or absorption, and the consequent crowding of the arch is illustrated in Fig. 6. The occlusion in the molar region is normal, but it will be noticed that the incisors above and below seem to have fallen inwards. This is explained by the loss of the lower deciduous cuspids, which has allowed the lower incisors to completely fill the space between the first deciduous molars, causing the lower incisors to slant backward in so doing, and the

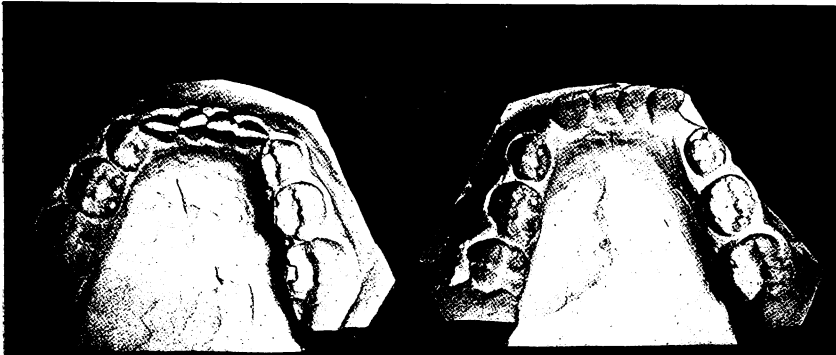


Fig. 7.

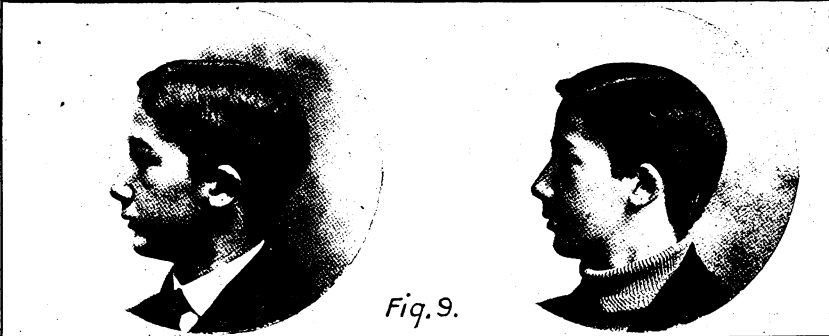


Fig. 9.

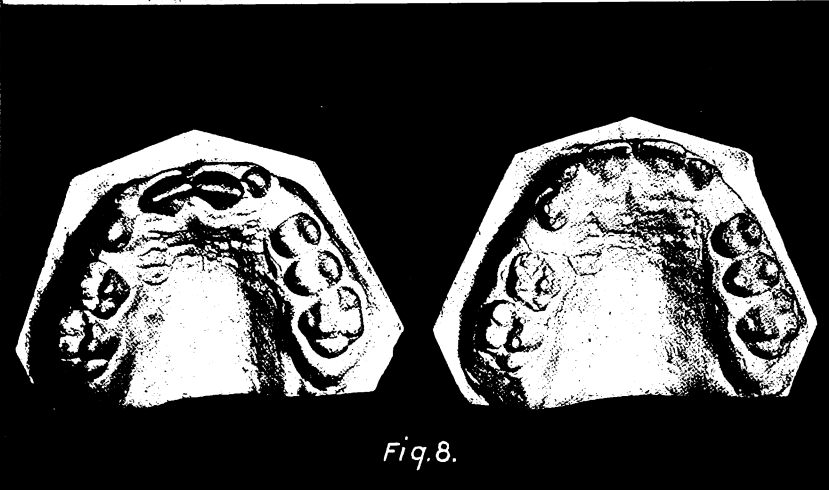


Fig. 8.

conformation of the upper incisors to the distal position of the lowers is very marked.

Fig. 7. Fig. 7 illustrates the opening of the lost space of the deciduous cuspids, to allow for the eruption of the permanent cuspids which would otherwise erupt outside the arch. The cast on the left shows the condition before treatment, and the cast on the right, immediately after treatment. This space is retained by a small plate until the cuspids have erupted sufficiently to render it of no more service.

Fig. 8. The two upper casts, before and after treatment in Fig. 8 illustrate the restoration of the upper arch of this to normal size and shape, the centrals being brought forward, and the space left by the lost deciduous molar on the right side being increased considerably.

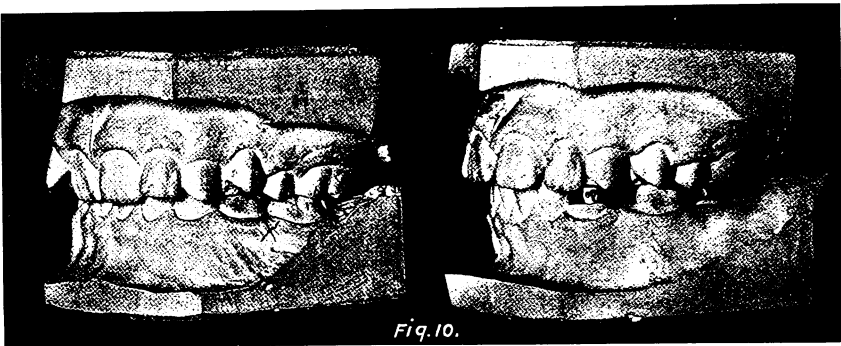


Fig. 9. The effect of the loss of even the deciduous cuspids in this case is readily discernible in the facial lines, the mouth falling in to a considerable extent as noted in the profile on the left in Fig. 9. The picture on the right illustrates the marked improvement in the profile after the treatment just described.

Surely, if extraction of the deciduous teeth prematurely and injudiciously causes deformities of this nature, is it not time that a better understanding of occlusion and its enlightening laws should be more generally known, if future generations of children are to be saved from deformity thereby?

The premature loss of any of the deciduous teeth has a similar destructive effect upon the occlusion, the difference being only in degree.

Fig. 10. The models in Fig. 10 illustrate a case (model on the left) in which the second deciduous molar was prematurely extracted, the closing up of its space, and

ITEMS OF INTEREST

the dropping lingually of the upper incisors to conform to the smaller lower arch. The model on the right shows the case after the space has been regained for the extracted molars, and the arches harmonized anteriorly, a band and spur retention being attached from cuspid to the first molar, pending the eruption of the bicuspid into occlusion.

Early Intervention to Prevent Malocclusion.

This is an opportune time to present a plea for the early intervention on the part of the dentist or orthodontist in the prevention of malocclusion in children. It is being impressed upon us more and more that the earlier we can undertake developing cases of malocclusion, the better the results that can be obtained in every way.

The age of development in the child is a time when Nature will respond more readily than in later life in the deposit of more stable calcific material for the formation of osseous structures surrounding teeth which have been moved. In fact, we may expect almost normal development of such osseous structure under these circumstances. In addition to this advantage, the teeth move more readily in the cartilaginous tissue of the process at an early age than after the complete calcification present after the eruption of all the permanent teeth. Also, treatment at an early age, such as about the time of the eruption of the first permanent molars, or even earlier in some cases, is largely preventive, a short painless operation being necessary to correct a developing malocclusion, and a more severe one is thus prevented by such early and timely interference.

The alveolar process is built up around a developing permanent tooth in whatever position it may assume. Is it not reasonable, therefore, to infer that an erupting tooth, such as a lower lateral erupting into lingual occlusion as has been illustrated, may have the full benefit of the osseous development process around it in the corrected position, thus giving it greater stability, than if moved at a later age?

The roots of the permanent teeth are incomplete at the time of the eruption of their crowns through the gums, and the completion of the root in an irregular position would not only increase the difficulty of movement later, but there would also be a greater tendency to return to the original position of irregularity on account of the greater resistance in a completed root and denser osseous structure to be overcome.

No matter what the operation, whether it is the movement of one or more teeth into alignment, the expansion of arches, or the mesial or distal changes in occlusion of all of the teeth of both arches, early treatment is always advisable, the less number of permanent teeth erupted making the operation easier and shorter because of the lesser resistance to be overcome, and because of the cartilaginous nature of the process at an early age.

ORTHODONTIA

The Arches of the Permanent Teeth.

Passing now from a consideration of the effects of extraction in the earliest periods of childhood, let us study for a time the arches of teeth fully developed, and the possibilities for good or evil of extraction of one or more of the teeth.

It is my intention to illustrate presently a series of practical cases in pairs, one of the pair having been treated by extracting, the other by restoration of normal occlusion without extraction, and by this comparative process, I shall endeavor to prove to you that the results obtained from study of occlusion are enough better to warrant us in giving extraction no place whatever as a scientific procedure in these cases.

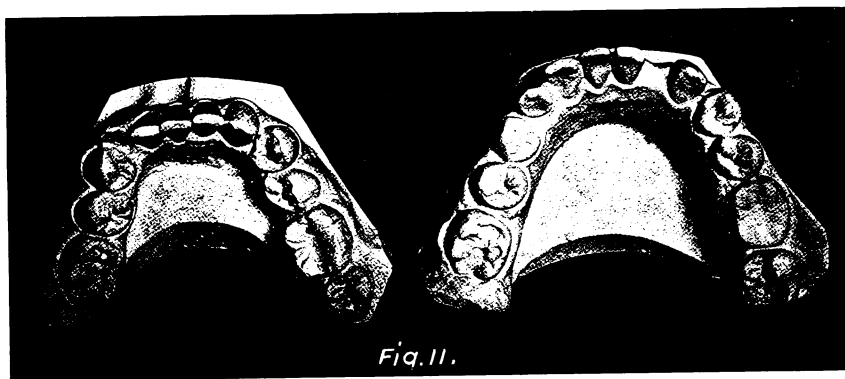


Fig. 11.

In the cast on the left in Fig. 11 it will be noticed that the lower right lateral incisor is missing, it having been extracted for the purpose of regulating. Formerly it was placed directly behind or lingual to its normal position. Those who hold the belief that extraction makes more room, I would ask to observe the increase in the size of the arch in the cast of the same mouth sometime afterward (cast on the right) when the space for the missing incisor has been restored. The fact must be noted that the cast on the right illustrates the restoration of normal size of the arch and of the space for the extracted lateral.

The question would naturally arise, "Why, if it was necessary in the treatment of this case to regain the space for the missing lateral, would it not have been wise to enlarge the arch to this extent when the case first presented with the lateral in lingual occlusion and to have restored it to its normal position and alignment in the arch?"

Here, indeed, is the clue to the proper solution of the problem, and illustrates, in a nutshell, the points I wish to bring out regarding the

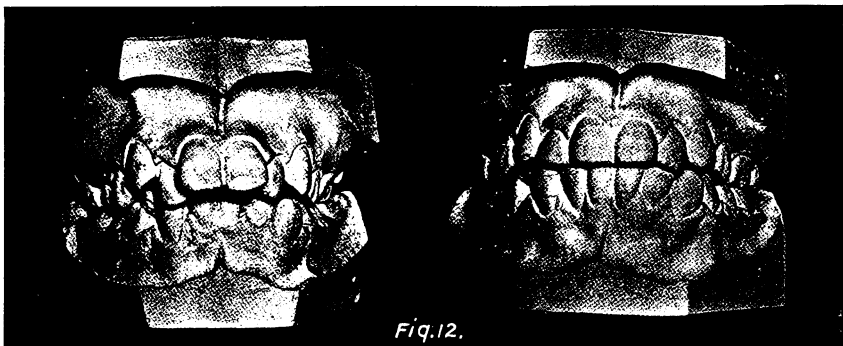
ITEMS OF INTEREST

impropriety of extraction either to "make room" or to correct the alignment.

The before and after treatment models of this case viewed from the front in Fig. 12, show how necessary it was to regain the space for the lateral and provide an artificial substitute in order to restore the normal relations of occlusion.

If only the upper arch had been restored to its normal size and shape, it would have been larger than the lower by the width of the missing lateral, in case the lower arch had not also been operated on and restored to its normal size.

There is no doubt in my mind that by many it would have been considered good practice to extract one or more teeth from the upper arch in order to correct this irregularity.



The history of the case of malocclusion in Fig. 13 is very familiar to the students of occlusion. As I previously stated, one arch depends upon the other for its malocclusion as well as its normal occlusion, and the same forces which tend to preserve a normal occlusion, act equally as well in malocclusion, tending to force the already irregular teeth still farther out of alignment, and holding them in this position indefinitely.

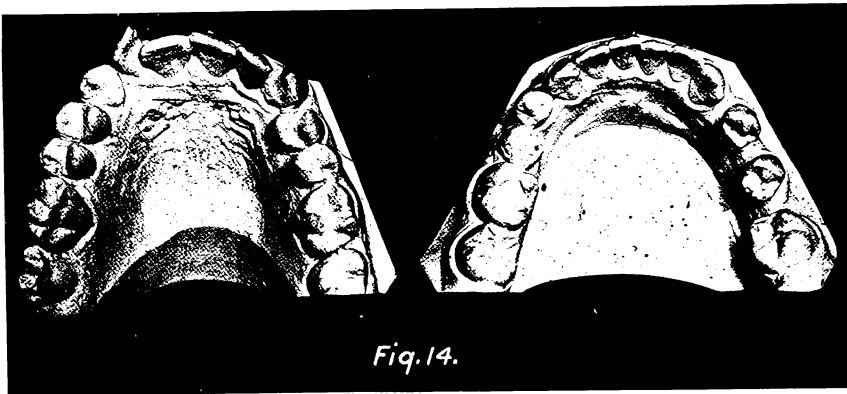
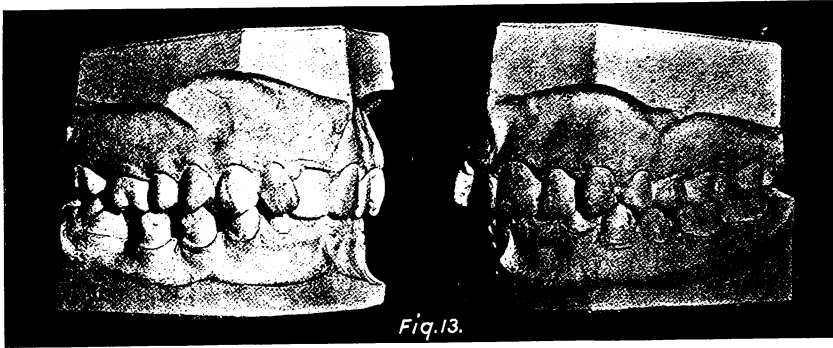
The model on the right in Fig. 13 represents the left side of the case in occlusion, exhibiting normal cusp relationship of upper and lower teeth as far forward as the cuspid.

The model on the left illustrates the destruction of occlusion on the right side as the result of extraction of the lower first permanent molar. There is no doubt but that the right side of this case was as normal in its occlusal relations as the left before the loss of the molar.

To those who are familiar with the changes in occlusion after the

ORTHODONTIA

extraction of the first molar, it is comparatively easy to follow the consecutive stages whereby the ruination of otherwise beautiful arches of teeth has been accomplished. Consequent on the loss of the first molar in this case, ensued not only the tipping forward of the lower second molar, but also the drifting backward of the second bicuspid into the space, followed by the drifting backward of the first bicuspid and the contraction of the whole arch. The effect of this contraction upon the upper arch is noticeable in the dropping backward of the incisors, and the rotation of the right



central. The closing together of the jaws in occlusion tends to force the second molar still farther forward and to draw the lower arch distally to a considerable extent on this side of the mouth.

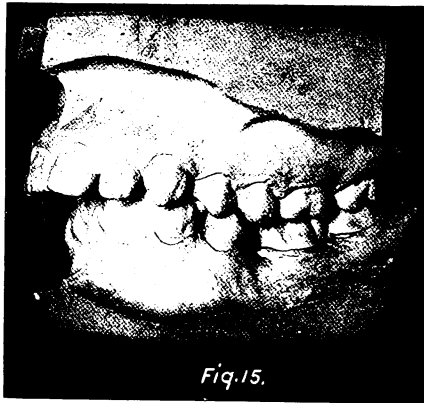
This succession of changes being complete, the same forces which tended to preserve normal occlusion and relationship of the arches also exert their influence in forcing the upper incisors against the lower incisors, and rotating the lateral, and this latter change is the only way Nature has of compensating for the loss of the first molar, and produc-

ITEMS OF INTEREST

ing a masticating occlusion, since, if the upper arch had retained its normal size and shape, the incisors, above and below, would not have touched, and the cutting up of food would have been very incomplete.

The occlusal view of the upper and lower arches of this case, in Fig. 14, illustrates from this aspect, the mutilation of the lower arch, and the consequent destruction of the upper arch, both arches being contracted, and the upper one flattened in the incisor region, allowing the upper lip to drop inward somewhat from its normal position.

A variation from this particular form of mal-occlusion as a result of tooth extraction, is observed in Fig. 15, the left side of an occluded model, showing the loss of the lower second bicuspid. Although the picture does not reveal it, this condition is bilateral, as the bicuspid on the opposite



side was removed at the same time. It will be noted that the occlusion of the molars is normal and that consequently, the arches have not shifted their occlusion antero-posteriorly, but that the lower arch has gone through the same process of contraction as the preceding case illustrated. In this case, however, the upper arch instead of conforming to the lower, has increased in size because of certain forces at work which are not generally recognized as being of sufficient importance to be mentioned. The lower lip in this case has rolled up under the upper incisors, and by its muscular pressure, forced the upper incisors outward, and has effectually retained them there.

And so we might go on and show case after case in which extraction of one or more teeth in either or both arches has resulted in not only inharmony in size and shape, but the destruction of occlusion, the normal

ORTHODONTIA

relationship of one arch to the other, and the production of faulty facial lines.

The extent of the deformity is usually proportionate to the degree of the extraction, every additional tooth lost causing just that much more aggravation of conditions and change to the abnormal.

But to come to the more direct bearing of extraction for regulating in crowded arches, let us examine a case, Fig. 16, in which the dentist who originally had charge of the case thought it was necessary to extract the upper

Fig. 16.

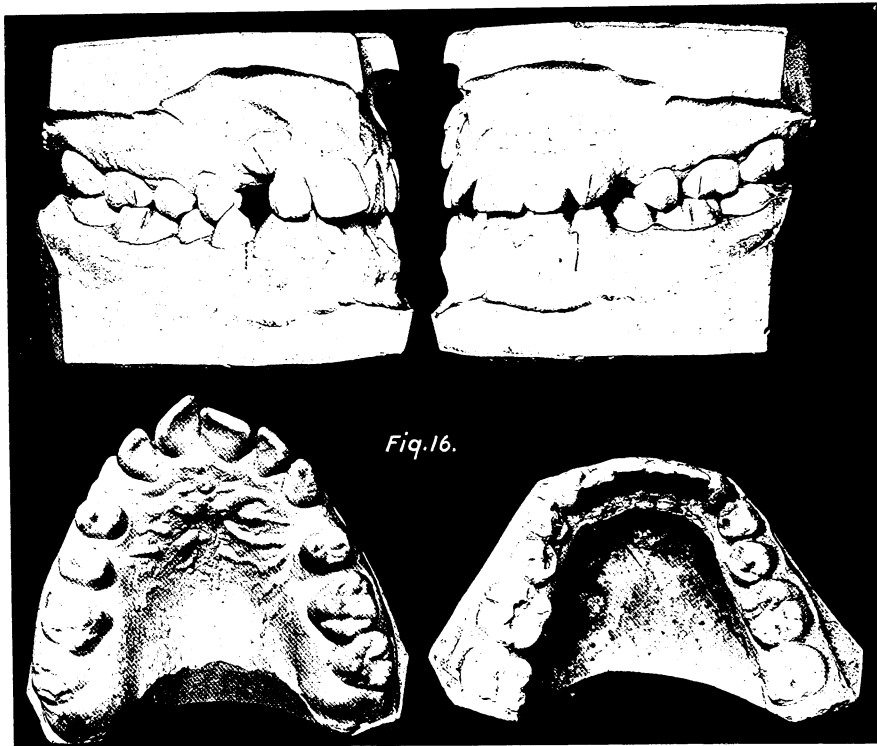


Fig. 16.

first bicuspid on the left side in order to "make room" for the erupting into position of the left upper cuspid which was in the same position originally as the right cuspid in the model on the left. The operation was performed as you can observe from the picture, the cuspid coming down into place, but the space of the extracted bicuspid remained, and rendered the mouth so unsightly that the patient was unwilling to have the same operation performed on the other side.

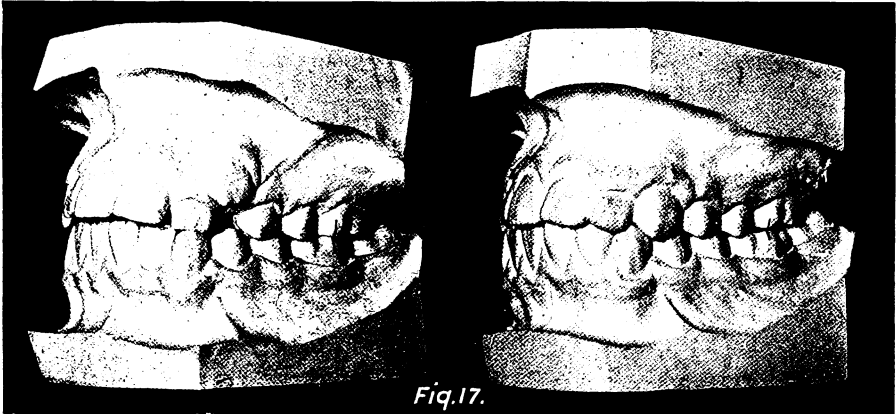
Looking at this case from the standpoint of occlusion, the mistakes

ITEMS OF INTEREST

made can be easily pointed out and the remedy suggested. In the first place, the operator did not understand occlusion or diagnosis, and treated the case entirely from symptoms.

What, then, you may ask, is the real cause of the trouble? Having satisfied oneself in this case that the arches were normally related mesio-distally, it must be apparent that the irregularity is entirely confined to the teeth anterior to the first molars at least, and by examination of the anterior part of the lower arch, the cause for the malocclusion is at once seen in the contraction of the arch, the incisors being in lingual occlusion, and the cuspids in torso-occlusion, thus producing a lower arch which is smaller than normal for the case.

The conformation of the upper arch to the lower in this instance by the dropping backward of the upper incisors, and their partial rotation



gives us a clue to the contraction of the upper arch anteriorly, and the lack of space for the erupting cuspids.

So much for the diagnosis, and now you will ask, "How should such a case be treated?"

Fig. 17. Fig. 17 illustrates a precisely similar case both as to etiology and diagnosis except that the malocclusion is only on the left side, the other being normal.

The prognosis in cases of this kind is always favorable to treatment without extraction and the diagnosis will invariably assure a result such as is here shown, the arches being restored to normal size and shape and normal occlusal relations, one with the other.

With the assurance of such perfect results in similar cases, are we going to strive for anything less than the ideal? Extraction would be a step backward. With the full complement of teeth present, and the arches

ORTHODONTIA

harmonized one to another, we are assured also of the most perfect support of each tooth in its normal position, and of the integrity of the arches individually, and in occlusion.

Having once attained an ideal of this kind, would it be possible for you to accept a lesser standard? No! And in your own minds you would formulate a simple and never-to-be-forgotten rule for similar cases presenting—"Do not extract!"

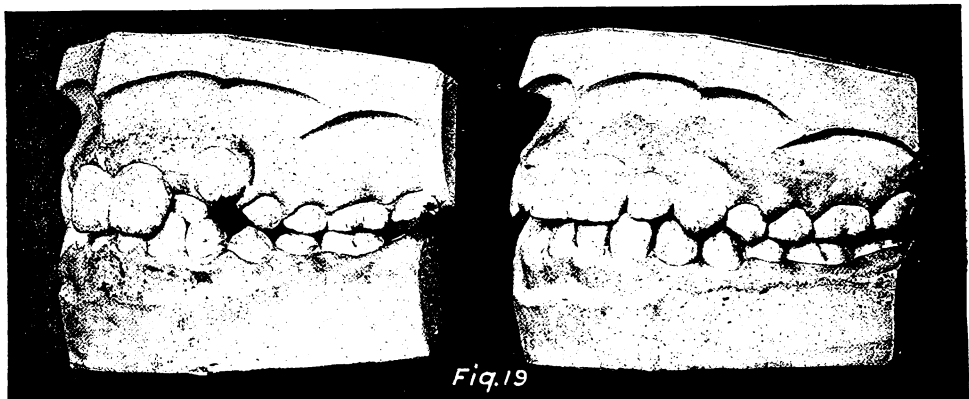
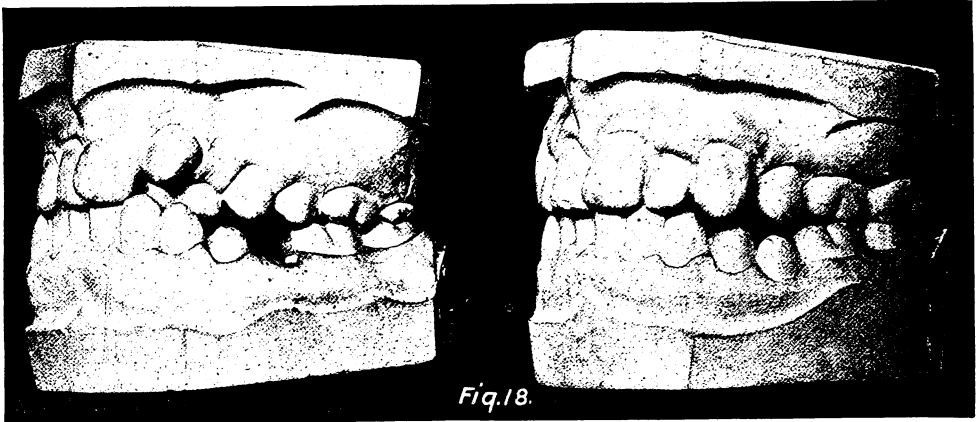


Fig. 18.

Fig. 18 exhibits a somewhat more severe case than the one just described but it might have been governed by the same laws in its treatment if they had been understood.

Two mistakes were made in the treatment of this case, however, one by the extraction of the upper second bicuspid, the other the neglect

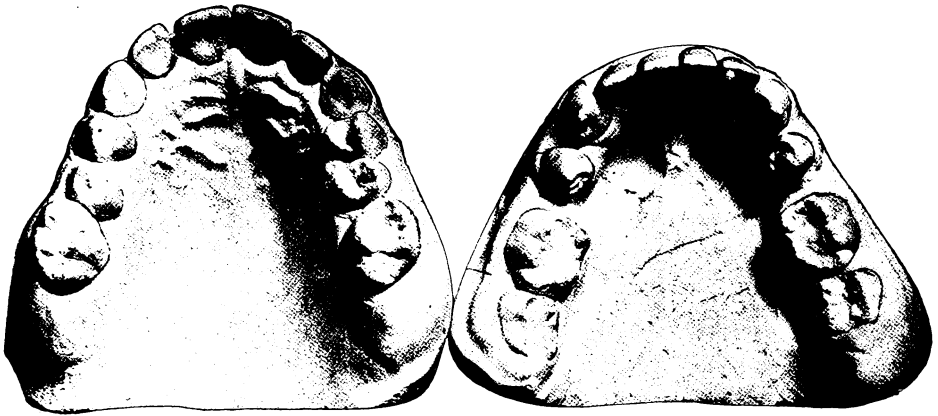


Fig. 20. Dr. Cryer's Fig. 33. From plaster casts of patient shown in Fig. 31. (Cryer.)*



Fig. 21. Dr. Cryer's Fig. 34.

From radiograph taken from the patient shown in Fig. 31, showing impacted lower second pre-molar and the germ of the lower third molar within its capsule.

*Figs. 20, 21 and 22 by courtesy of Dr. Cryer and the *Dental Cosmos*.

of the slight irregularity in the lower in the treatment of the case. The after treatment on the right shows alignment to a certain degree but it will be noticed that the arch is still crowded, and that the possibility of harmonizing the arches and restoring occlusion is forever lost. All that was needed was the regaining of some lost space in the lower arch and the harmonizing of the upper arch to it, saving all of the teeth.

Fig. 19. Fig. 19 illustrates a similar case in which the ideal has been attained in the restoration of normal occlusion without extraction, each occlusal plane having been moved into its correct relationship with its antagonist of the opposite



Dr. Cryer's Fig. 31. Profile of patient 13 years of age.

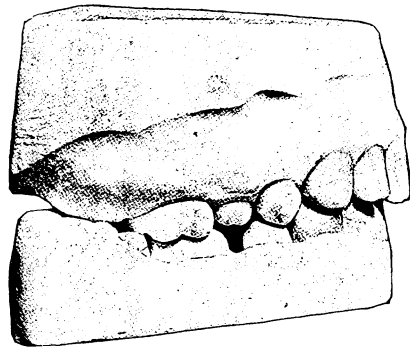


Fig. 22.

Dr. Cryer's Fig. 32. From plaster casts taken from patient shown in Fig. 31.

arch, and the production of a harmonious result which is truly beautiful. Those results were obtained some eight years ago when the principles of occlusion were much less known than now.

Fig. 20. The casts in Fig. 20 (Fig. 33, Cryer) appeared in the September *Cosmos* for 1904, in an article by Dr. Mathew H. Cryer, of Philadelphia, on "Typical and Atypical Occlusion of the Teeth in Relation to the Correction of Irregularities," the author having borrowed the case for use as illustration from Dr. Marshall Smith, of Baltimore.

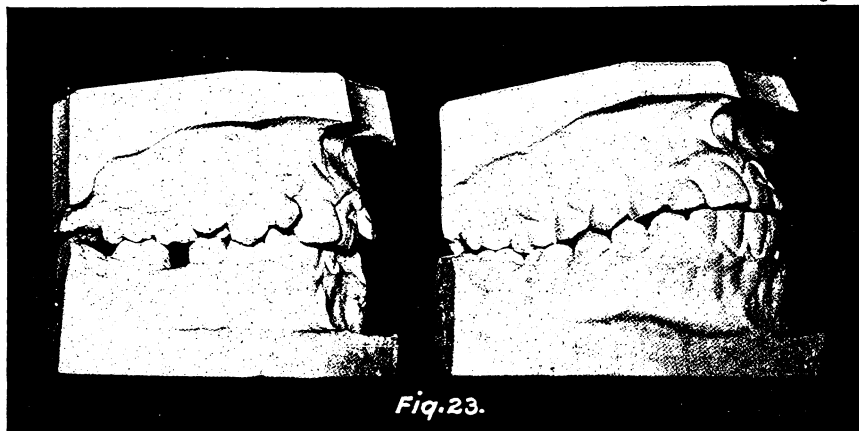
The lower cast in the picture presents a condition which is very commonly found in the practice of the orthodontist, a contracted arch, due to the delayed eruption of the second bicuspid, or rather to the lack of mechanical retention of its space by its deciduous predecessor.

ITEMS OF INTEREST

Fig. 21. The accompanying X-ray in Fig. 21 (Cryer, Fig. 34), shows one of the impacted bicuspid, most effectively locked in, as it were, with no possibility of its ever by its own volition erupting to occlusion.

Fig. 22. Fig. 22 (Cryer, Figs. 31-32) illustrates the side-view of the occluded model of the case, with accompanying profile of patient, showing deficiency of normal contour in the region of the mouth.

The writer describes the falling in of the arches and the receding effect upon the facial lines. Likewise, he points out the fact that it is a most interesting case to the orthodontist, presenting a rather unusual problem for the solution of which there is a necessity of devising some method which will assist the lower teeth and their alveolar processes to



move forward, thus liberating the two second bicuspid and allowing them to erupt in the line of occlusion. "It will be necessary," Dr. Cryer says, "at the same time to exercise the greatest care that nothing be done which would prevent the third molars from developing and taking their proper positions."

In reality, cases of this nature are comparatively simple problems to the orthodontist, as I shall attempt to show you in the next and accompanying slides.

Fig. 23. The model on the left of Fig. 23 represents an almost identical case unilaterally, the deciduous second molar having been prematurely extracted, and the second bicuspid impacted in a similar manner to the case previously shown. At the same time the upper anterior teeth have dropped back-

ORTHODONTIA

wards to conform to the smaller lower arch. The prognosis of this case, as in the majority of cases that present, is favorable to the restoration of the normal size and shape and relation of the occluded arches with the regaining, of course, of the space for the impacted lower bicuspid which erupted to occlusion as soon as the exit was sufficiently free from obstruction.

If this operation is properly performed, there is absolutely no danger of any ill effects upon the eruption of the third molars, for a proper conservation of anchorage would not produce any backward displacement of the first molar. It will be noticed that the second molars erupted into normal occlusion during the operation and if there had been any displacement of the first molars or second molars, it would have been apparent in the after treatment model.

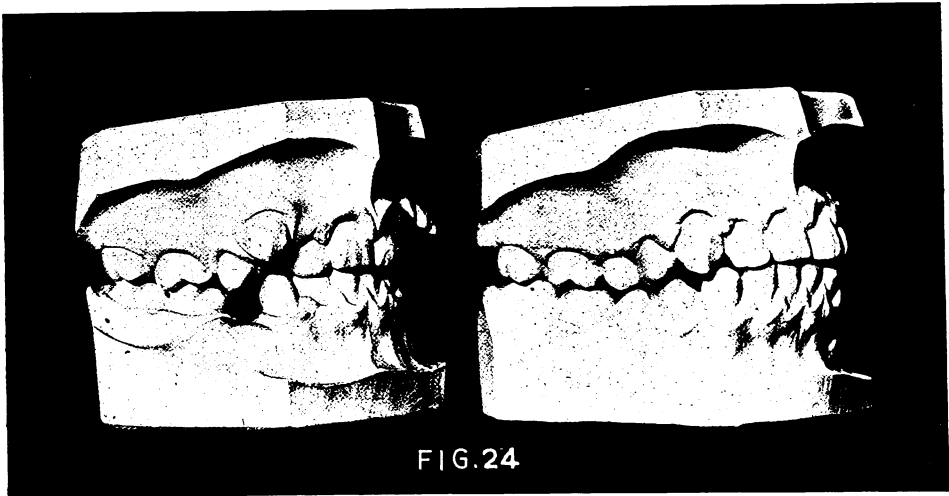


FIG. 24

Again we have restored the ideal of normal occlusion, and added to the beauty of the mouth and symmetry of the face, by following out the principles of occlusion in this case.

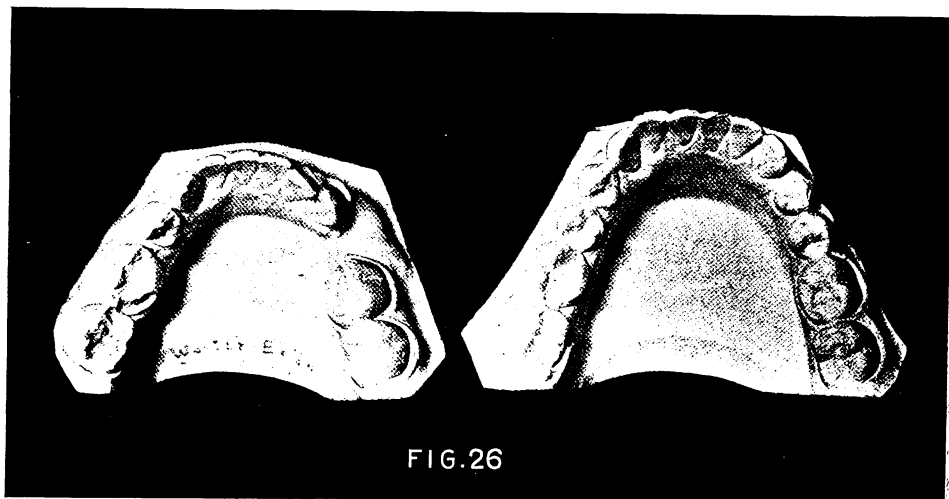
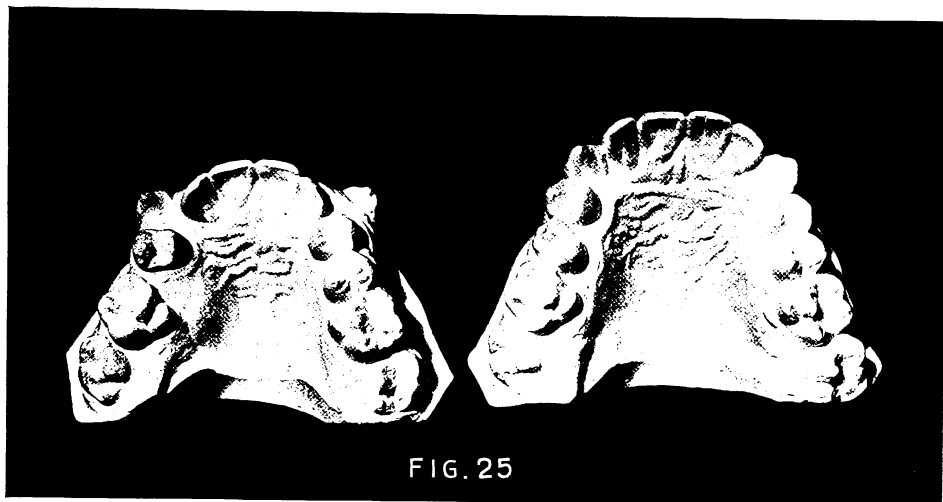
If there is any doubt in your minds as to the possibilities of this science, I think the illustrations of the next case will dispel it, and that you will be won over to conservative treatment in orthodontia, if you are not already.

Fig. 24 represents one of the most difficult cases presenting for treatment in the practice of the orthodontia specialist.

This view of the case illustrates the right side before and after treat-

ITEMS OF INTEREST

ment, and the solution of the difficulties encountered by the restoration of normal occlusion without the loss of a single tooth. There is no doubt in my mind but that the premature loss of the deciduous cuspids and mo-



lars, probably by extraction, was the cause of the malocclusion and non-development of the arches of teeth in this case.

Fig. 25. The occlusal view of the upper casts before and after treatment in Fig. 25 exhibit a degree of expansion which would not have been believed possible.

ORTHODONTIA

by the uninitiated. The upper second bicuspid on the right side was freed from impaction in the lingual side of the arch and restored to its proper position of occlusion, the cuspids also being restored to alignment, or rather the rest of the teeth to the cuspid alignment, as they were more nearly in their normal positions than any of the other anterior teeth.

The lower cast on the left of Fig. 26 exhibits the impaction of three teeth, two bicuspids on the right side and the second bicuspid on the left side, the release of which could never have been possible without interference. In the cast on the right, the accomplishment of the operation successfully may be noted, as well as the unusual expansion necessary to restore the normal size and shape of the arch.

Fig. 26.

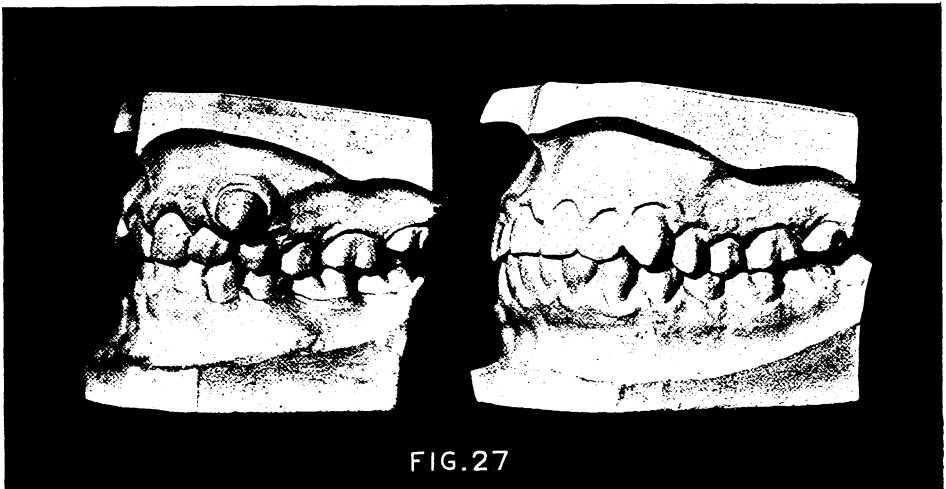


FIG. 27

The positions of the first and second molars were not disturbed and we may rest assured that when the third molars erupt, they will not have been hindered by the operation as described, in fact, the development of the anterior part of the arch may possibly aid in this process by making normal development possible in all parts of the alveolar arches of the two jaws.

The picture of the left side of the case after treatment, in Fig. 27, needs no description. The result of correct and ideal treatment without extraction is very evident, and the classic lines in the after treatment model on

Fig. 27.

ITEMS OF INTEREST

the right can scarcely be excelled in beauty by any masterpiece of the sculptor's art. Notice the graceful curves of the arches, the symmetry and proportion of contour, the wonderful harmony which prevails in the arches as in the perfect adjustment of each occlusal inclined plane of the antagonizing teeth in normal occlusion.

Is it any wonder that our field is a fascinating one when such results as these are possible?



Fig. 28. The accompanying profile of this patient, Fig 28, is shown in order to illustrate the fact that these operations do not produce "undue protrusion" of the lips, as has commonly been supposed. The profile is entirely in proportion for its type, and I am sure that none of you would think of suggesting that an operation of this kind had been performed if you were not already aware of it.

Fig. 29. Another case of the same class, but differing somewhat in its external aspects, is illustrated in Fig. 29. If it were not for the normal positions of the molars, one would be pretty apt to make a mistake in the diagnosis of this case and class it with those cases which are generally recognizable as protrusions of the lower arch.

This case, however, is only an apparent protrusion, in reality the upper arch is almost entirely at fault, there being present faulty anterior develop-

ORTHODONTIA

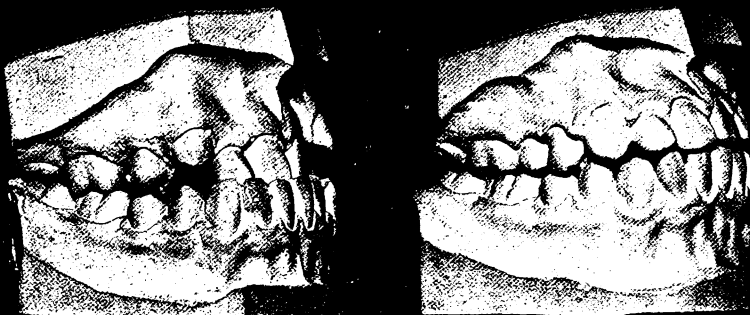


Fig. 29.



Fig. 31.

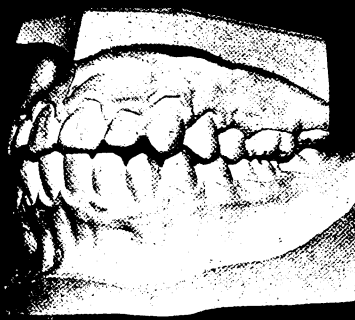


Fig. 30.

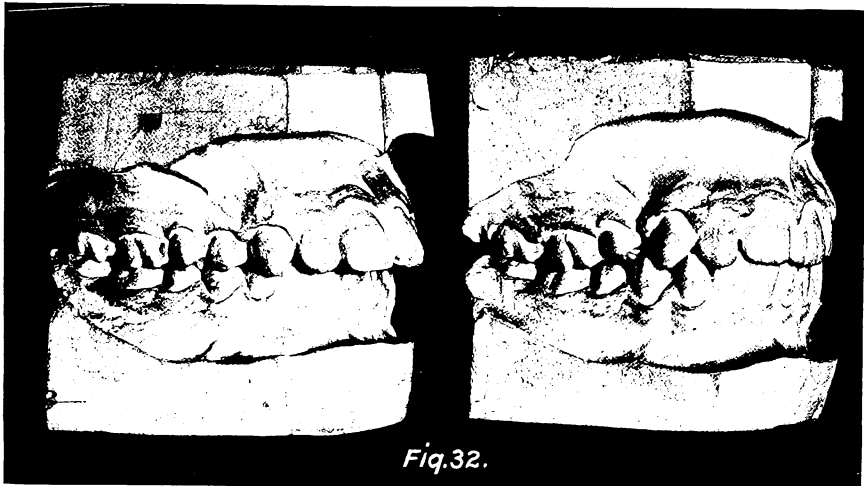
ITEMS OF INTEREST

ment due to the several teeth that are out of alignment. In the after treatment model it will be noticed that the arch has been artificially developed, until space has been made for all of these teeth and their restoration to positions of normal occlusion. Especially interesting is the regaining of the space for the upper second bicuspid without a change in the occlusal relations of the first molars, all development having taken place anterior to them.

Fig. 30.

Fig. 30 illustrates the same process to a lesser degree upon the left side of the mouth. Of what possible benefit could extraction have been to a case

of this kind?



Diminishing the size of the upper arch by such procedure would only have aggravated the condition, while extraction in the lower arch would have been equally as destructive to occlusion and facial lines.

Fig. 31.

The after treatment profile in Fig. 31 proves to us how necessary the anterior development of the arch was in order to produce that change in the features which was essential to its proper harmony of contour.

The upper lip has been brought out just enough to harmonize the lines of deformity into those of symmetry and beauty.

Upper Protrusions.

Fig. 32.

Coming now to another class of deformities in which extraction of one or more of the bicuspid has been advised as of value in the reductions of protrusions such as is here illustrated, Fig. 32, let us note in the case the results of such extraction upon the arch. The first

ORTHODONTIA

bicuspid was extracted and the anterior teeth drawn backwards until the space of the extracted tooth was closed, a very common operation extant among the profession for the correction of this deformity. The model of the completed case on the right exhibits no such harmony of contour as the model of the completed case which we have just passed.

The curves are not graceful, the mutual support of the full complement of teeth has been lost, and a lame and crippled appearance is distinctly noticeable.

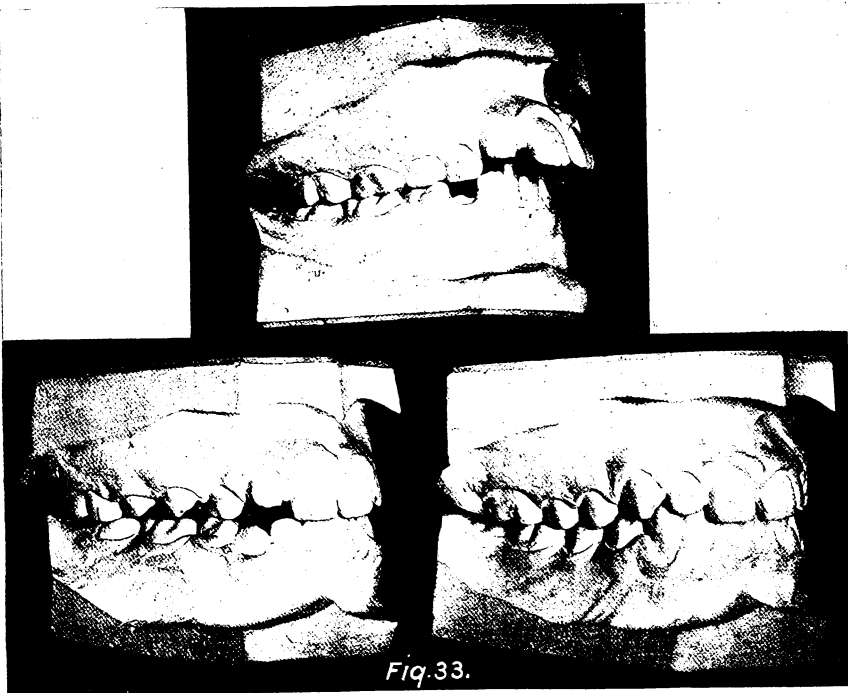


Fig. 33.

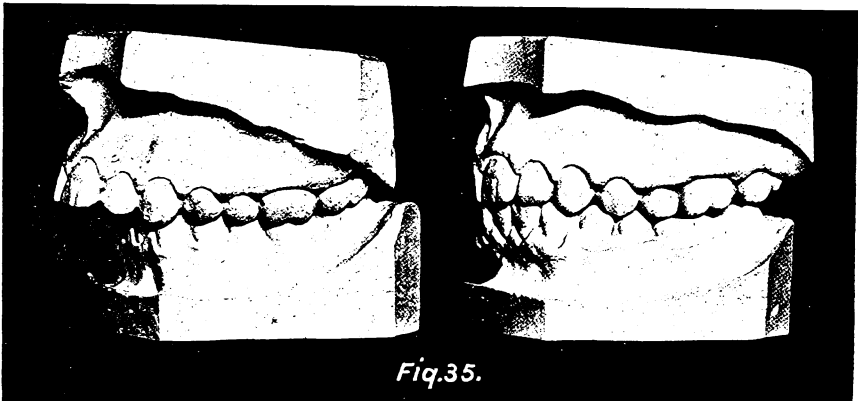
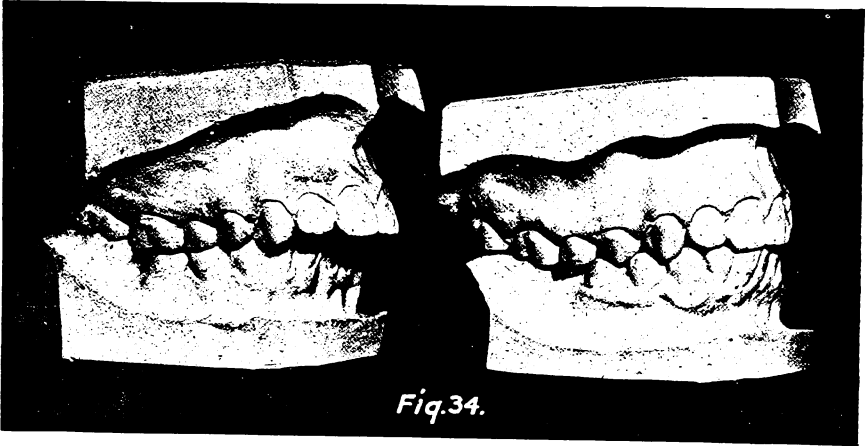
The operation which the conservative orthodontist now performs in similar cases is radically different. An almost identical case before treatment is illustrated in the model at the top of the picture in Fig. 33, the only difference being that it is bilateral in the distal occlusion of the lower arch, while the previous one was unilateral only.

The lower model on the left shows a stage in the treatment in which the molars have been shifted from distal to normal occlusion and the protrusion reduced, the deciduous cuspids and molars being in place. The important office of the first molars can be plainly seen in this picture as

ITEMS OF INTEREST

holding the arches the proper distance apart and in the correct mesio-distal relation while the deciduous teeth are being shed and the permanent bicuspid are erupting to occlusion.

The lower model at the right illustrates the completed case with the permanent teeth all erupted except the third molars. Normal occlusion



has been obtained and a most perfect locking of cusps—again, without the loss of any of the teeth in the operation.

Much of the success of cases of this class undertaken at this early age, is due to careful oversight of the orthodontist during the shedding of the deciduous teeth and the eruption of the permanent set. The first molars are first shifted in their occlusal relations until the correct relations of the arches are established, making it possible for the normal



eruption into occlusion of the unerupted permanent teeth, which are very carefully watched until their normal locking into occlusion is assured.

Fig. 34 illustrates the before and after treatment models of another case of the same class, in which the condition is aggravated by the loss of the first permanent molar on the lower right side, and we note the necessity for

ITEMS OF INTEREST

regaining and retaining this lost space by artificial substitution before the normal condition of occlusion can be established.

Fig. 35. Fig. 35 shows the perfect relationship of occlusion secured on the other side of the arches, a result which could not have been obtained without the full complement of teeth.

The arches were shifted mesio-distally as in the previous case until normal occlusal relations were established.

Fig. 36. The before and after treatment profiles in Fig. 36 illustrate the harmony in the facial lines obtainable by carrying out the principles which have made orthodontia a science, the restoration of the normal in occlusion and facial relations for the type of case presenting.

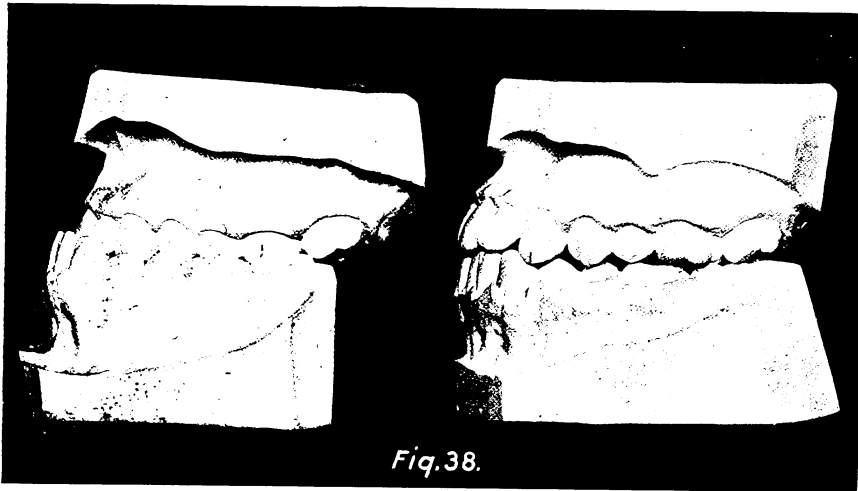


Fig. 37. The front view in Fig. 37 shows perhaps to even a more marked degree the reduction of the unsymmetrical lines of facial inharmony, and the production of pleasing lines of harmony and beauty in the face.

Lower Protrusions. In still another class of deformities of the mouth can the value of conservative methods of treatment be illustrated, viz.: the protrusions of the lower jaws.

Fig. 38. Shifting the occlusion of the arches in the opposite direction from that of the two preceding cases, and retaining the full number of teeth, has made it possible to restore the normal in a case of the severity of the one shown in Fig. 38.

ORTHODONTIA

One feature of special interest relative to the possibilities of interference with the normal eruption of the third molars spoken of by Dr. Cryer in the article previously mentioned was noticeable in the treatment of this case, and that was the fact that the lower third molars both erupted normally into occlusion soon after the after treatment model was made, and with no more trouble than if the operation had not been performed.

Fig. 39.

The change in the profile is very apparent from a study of the face before and after treatment as shown in Fig. 39.

Conclusions. The theories of occlusion teach us the necessity for the preservation of the full complement of teeth in every orthodontic opera-



tion, and the recovery and retaining of space lost through extraction where it has been practiced, in order to restore the integrity of the arches and the normal interlocking of inclined cusp planes in occlusion.

Also that their function of mastication is best served with the teeth in normal occlusal relations.

That diagnosis and prognosis are only possible through a classification dependent upon the variation from this normal condition of occlusion.

That treatment in every case should be the restoration of the normal occlusion instead of its destruction.

That the etiological characteristics of a very large percentage of cases of malocclusion presenting, are distinctly traceable to premature

ITEMS OF INTEREST

extraction or loss of deciduous teeth, or the injudicious and often almost criminal extraction of permanent teeth.

That the individual tooth of either deciduous or permanent set is a factor of the greatest importance to the preservation of occlusion and in the prevention of malocclusion.

That the practice of extracting teeth to "make room" or correct irregularities is utterly wrong, unscientific and should be obsolete.

That there is a permanent field for the orthodontia specialist, who by special study and training along these lines, is best prepared to treat and advise in cases of malocclusion.

That symptoms are entirely unreliable as means of diagnosis of malocclusion, and that treatment based thereon is always a failure.

That the success of every orthodontic operation lies in the nearest approximation to the perfect relationship of normal occlusion, whereby alone, permanent retention through the normal action and reaction of the arches through cusp influence may be secured.

That early intervention and treatment of malocclusion during the period of shedding of the deciduous teeth and the eruption of permanent teeth is necessary in a very large percentage of children, in order to prevent malocclusion and assist in the physiological development of normal alveolar arches, and that no case of malocclusion should be allowed to await the completion of the second dentition.

That the "nature cure" for the correction of irregularities is a popular delusion, and is as pernicious as it is ignorant advice.

That the best results in facial orthopedia, in the restoration of harmonious and pleasing facial lines, are only attainable through the preservation of the full complement of teeth and restoration of normal occlusion.

That the teachings of occlusion are typified by conservation of dental organs and restoration of the normal, and that extraction typifies mutilation of the dental arches and destruction of the normal.

The results of tooth extraction in the mutilated arches of teeth, impairment of speech and mastication, and the formation of faulty and oftentimes hideous facial lines, are so prevalent that it would seem that the necessity for the teaching of correct methods of treatment in orthodontia is paramount to prevent future generations from afflictions in the same manner.

It would appear that, granting its principles are correct and scientific, that the new school of orthodontia has a mission to perform along the lines of education of the profession and laity, the results of which, if properly performed, will confer a lasting benefit on a grateful profession and a boon to countless thousands in the future generations of our patients.



When is Radical Treatment in Orthodontia Justifiable?

By S. H. GUILFORD, D.D.S., Ph.D., Philadelphia, Pa.

Read before the Second District Dental Society, Feb., 1905.

The expression "radical treatment" in its broadest signification might be applied to a number of operations associated with the regulation of teeth, but in the present instance we confine it to the extraction of teeth preparatory to, or during the operation of their alignment in the arch. The question as to whether radical treatment, or extraction, is ever justifiable will hardly admit of discussion, for all writers upon the subject of orthodontia, or those who have given the subject special consideration, have admitted in their writings that extraction is sometimes necessary, or at least advisable. Of recent years there has arisen a so-called new school of orthodontia, the adherents of which are credited, in the popular mind, with the belief in and the practice of non-extraction of teeth for purposes of regulating.

That this conception is erroneous is shown by a careful reading of Dr. Angle's work on Malocclusion. He is the acknowledged head of the new movement and his writings and teachings upon this subject have never met with dissent on the part of his adherents so far as your essayist is aware. In the work referred to, the author declares that "he would not say that extraction is never necessary," and further, "that there are cases in which it is necessary."

He declares that "the first molar or cuspid or lateral should never be removed, but between the first and second bicuspid there is little choice, only that the extraction of the second bicuspid increases the difficulty of treatment."

Later, in the description of cases he mentions one, in regard to which he says "as there is inharmony as to size of the two arches to the extent of one bicuspid, the treatment clearly indicated requires the extraction of the first upper bicuspid on the abnormal side and the movement distally of the incisors and cuspid until the space is closed."

In reference to another case he says "so the treatment for the typical case clearly indicated the sacrifice of the upper first bicuspid on the abnormal side in order that the arch might be reduced in size to conform to that of the lower."*

*In the discussion following the reading of the evening's papers, some of the speakers declared that Dr. Angle had extended his ideas in regard to non-extraction since his book was published, and that now he is more opposed to extraction than he ever had been.—AUTHOR.

ITEMS OF INTEREST

The Problem of Extraction.

It would therefore seem that if extraction in certain cases is clearly indicated the question resolves itself into one of how frequently or under what circumstances extraction is justifiable. In the discussion of this subject it must be approached from the standpoint of the true orthodontist; a lover of his specialty; one who would not adopt methods unless he believed them to be for the best good of his patient under existing conditions. The practitioner who is so situated that his practice is of the most varied character; who meets with a case of irregularity only occasionally; who has no fondness for this particular line of work and who is anxious to dispose of each case with the least trouble to himself will often be led to indulge in unwarranted extraction because it seems to him the easiest way out of a difficulty. For such, no consideration must be shown in the present discussion because his is the practice of expediency with no regard for the best interests of his patient.

But for those who view the subject from a higher plane and who are actuated in their work by the true, professional spirit the question of the relative merits of extraction as related to orthodontia must naturally be one of greatest interest.

Mankind in general is disposed to run to extremes both in judgment and acts and for this reason when anyone favors a certain method of practice the average mind is apt to jump to the conclusion that he follows it to its limit and credits him with a degree of radicalism that is totally unwarranted.

Because your essayist has in his writings and in various public discussions advocated the extraction of teeth under limited conditions for the correction of irregularity, he feels that he has been given credit, in the popular mind, for indulging in this practice far more frequently than the facts would justify. To correct such a misapprehension permit me to say, here and now, that I have always regarded the practice as one fraught with the greatest of dangers and one to be followed only in rare and exceptional cases.

Anyone who has had a large experience in the practice of orthodontia, and who has carefully studied the failures and successes in his own practice, as well as those of others in the same special field cannot fail to have noticed and to have been impressed with the awful and irremediable results of the injudicious and indiscriminate extraction of teeth in connection with regulating.

For this reason, if he be wise, he will not only endeavor to steer clear of such calamities himself but will be most careful to avoid saying or doing anything that might lead others of less experience into the adoption of measures that might prove their undoing.

ORTHODONTIA

The cases that come to us for treatment differ widely not only in their individual features but also in the personal considerations which have prompted them to seek our services.

The Wishes of Parents.

In many instances, where the parents are cultured and have the esthetic feeling strongly developed, they will desire to have all deformities of their children's mouths corrected in the most perfect manner possible. They are willing that any amount of time shall be taken, discomfort endured, and expense incurred, only asking in return that the results shall be as artistic, esthetic and beneficial as our skill can make them.

On the other hand, there are those who desire only to have any glaring deformity corrected, allowing minor defects to remain as they are. Their wishes in regard to this matter may be prompted by the physical condition of the child; by a desire to limit the expense of the operation, or by a feeling that a fair amount of improvement in the condition will answer all necessary purposes.

What shall we do in these two widely varying classes of cases?

Shall we insist upon treating each in the same manner?

In regard to the first class there will be no difficulty. The parent desires a result approaching the ideal, regardless of other considerations, and we are only too glad to put forth our best efforts and bring to the work the best skill of which we are capable.

In the vast majority of such cases, extraction will not be necessary, for with time at our command and the appreciative assistance of the parent, we will usually be able to bring about results nearly ideal.

But how about the other class?

Shall we insist, in spite of the wishes of the parent in regard to the limitation of the work, that we must pursue the same elaborate course of treatment as in the first instance? Certainly not.

In this as in other departments of dentistry, parents or patients have a right to decide what they will have done and as long as they do not ask us to do that which we know to be wrong or inadvisable, we must respect their wishes. We do so in much of our other work, why should we not do it in orthodontia?

To refuse to recognize their wishes in the matter would simply result in their abandoning the idea of having anything done and the child would be the sufferer in consequence.

Is it not wiser to be satisfied with a fair result than to have no improvement at all?

It is important to have high ideals, for they stimulate us to better

ITEMS OF INTEREST

efforts, but circumstances will often interfere with our attaining them and this fact must be recognized.

If the operation can be simplified by the extraction of a tooth or two and a fair measure of improvement be obtained without over-taxing the child's vitality, will we not be justified in the procedure if by not doing so we would obtain no result at all?

Many of those who combat the idea of extraction take the first molar or the incisors as examples to show the evil results of the practice, but where is the practitioner who today would even consider the propriety of removing a first molar or one of the superior incisors for the purpose of assisting or simplifying an operation in orthodontia?

There was a time when such a procedure was considered justifiable, but that time has long passed. A lower incisor may occasionally be sacrificed in order to simplify the alignment of the lower anterior teeth, but in the upper arch and most generally in the lower one as well, the question of the loss of one or more teeth relates only to the first bicuspid.

This being the case it becomes necessary to consider the classes of cases in which this tooth might advantageously be removed. There would seem to be but two.

**Where Extraction
is
Justifiable.**

First. Where both the upper and lower teeth on one side of the arch are in normal position and relation, while on the other side we find a cuspid standing entirely outside of the arch with no space in the arch for its accommodation.

In such cases, if the overbite of the superior centrals be normal and the bicuspid and molars on the afflicted side be in advance of their normal positions, but in fairly good occlusion, we believe that the extraction of a first bicuspid would not only be permissible but would, in reality, be the best plan to pursue.

The shifting of the median line slightly to the side where the extraction has taken place would be of little moment, for it would scarcely be noticeable and therefore should not deter us from accomplishing that which we could not well otherwise accomplish.

Second. Where the harmony of the features would be satisfactory save for the protrusion caused by both outstanding cuspids, it is obvious that the extraction of the first bicuspid would be infinitely better than to enlarge the anterior portion of the arch and thus produce an unnatural fullness of the lip.

The same may be said in cases where both the upper and lower arches are similarly affected.

Under such conditions the extraction of all four first bicuspid would be called for in order to prevent anterior protrusion of both arches.

ORTHODONTIA

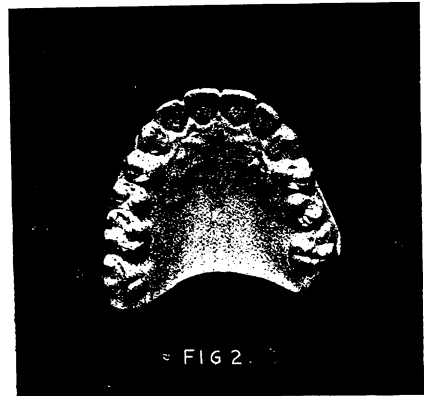
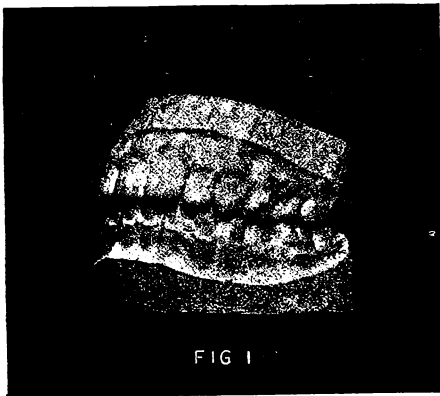
Finally, it may be said that the orthodontist must decide for himself whether he proposes to base his treatment entirely upon the attainment of the ideal, or whether he will be satisfied in many cases with results less than ideal but harmonious and satisfactory from a practical standpoint.

If the former he may often save all of the teeth, but fall short of attaining results that are entirely satisfactory; if the latter, he will occasionally sacrifice a tooth or two in order that the general result may be improved and the patient equally benefited.

The first case I have to present (Figs. 1 and 2) is that of a girl of fourteen, whose upper and lower teeth on the right side occluded naturally, but on the left side above, the lateral and cuspid were crowded and out of line, the former having erupted lingually and the latter labi-

Case 1.

Figs. 1 and 2.



ally. The case had been under treatment before it fell into my hands, and unfortunately, the first molar had been extracted without any amelioration of the irregular condition. Without great difficulty, both bicuspids were moved backward and the irregular teeth brought into alignment.

It will be seen that notwithstanding the loss of a molar the arch is symmetrical in outline, and the occlusion on the affected side while not ideal is certainly sufficiently good for all practical and esthetic purposes.

Case 2.

Figs. 3 and 4.

The second case, Figs. 3 and 4, is somewhat similar in regard to the malposition of the upper lateral and cuspid on the left side. Besides this there is labial displacement of the upper right cuspid with insufficient room in the arch for its accommodation. By rotating the right bicuspids and moving them slightly backward space was obtained and the cuspid brought into line. As there was no upper protrusion and the overbite was natural

ITEMS OF INTEREST

it was decided to extract the upper left first bicuspid. This was done and the malposed lateral and cuspid brought into position.

The lower arch was normal in size and outline and therefore did not call for any change. To have corrected the irregularity above, preserving all of the teeth, it would have been necessary to enlarge the upper arch, thus producing great inharmony between the two arches, accom-

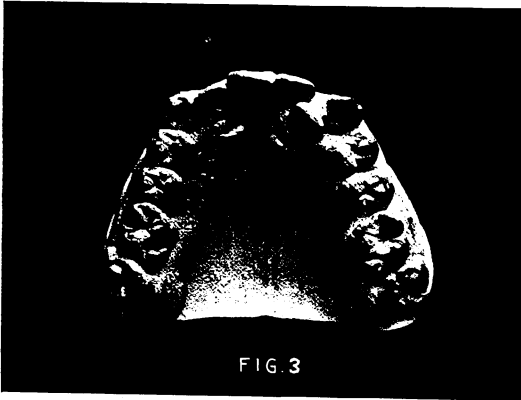


FIG. 3

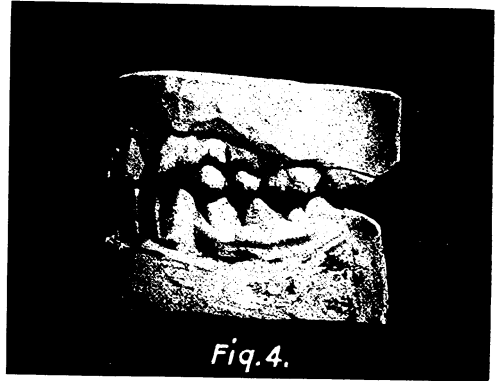


Fig. 4.

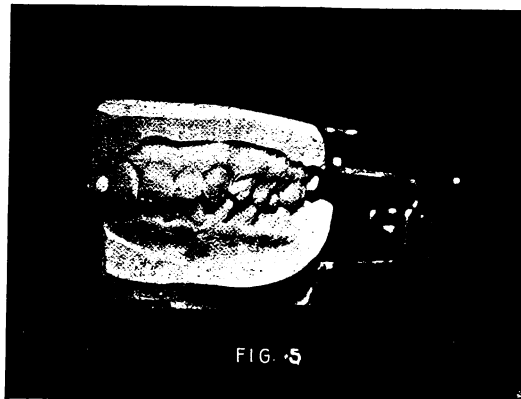


FIG. 5

panied by anterior protrusion in the upper one. Would not this have been producing a great deformity in the correction of a lesser one?

Case 3.

Fig. 5.

In the next case, Fig. 5, the superior laterals, probably due to late eruption, were forced by the incoming cuspids to overlap the centrals and become turned upon their axes. The cuspids therefore were anterior to their proper position and in consequence the bicuspid and molars occupied advanced positions. As the lower teeth were normal in

ORTHODONTIA

outline and arrangement it was deemed inexpedient to enlarge the upper arch, so the first bicuspid above were removed and the laterals and cuspid moved into place.



Fig. 6.



Fig. 7.

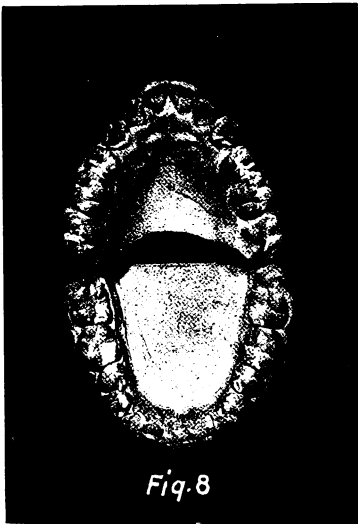


Fig. 8

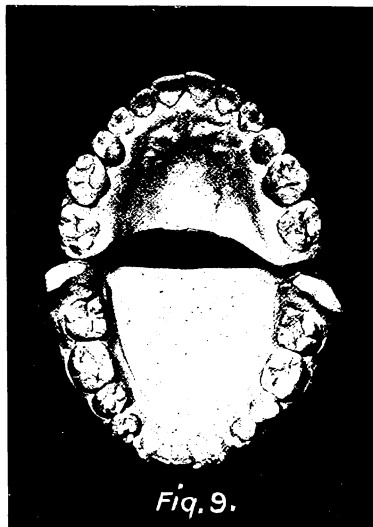


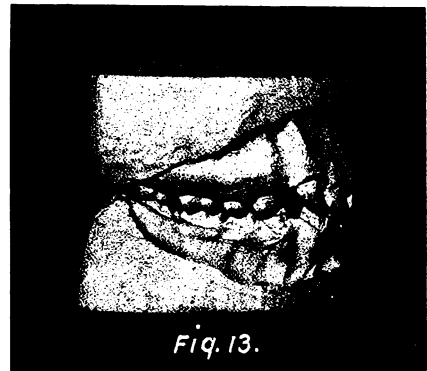
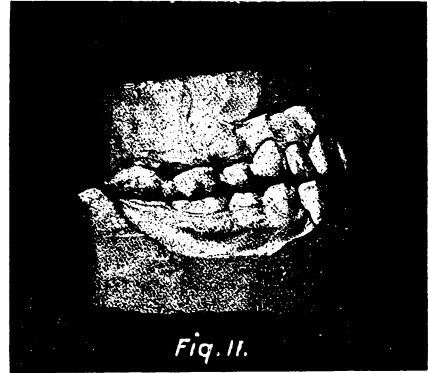
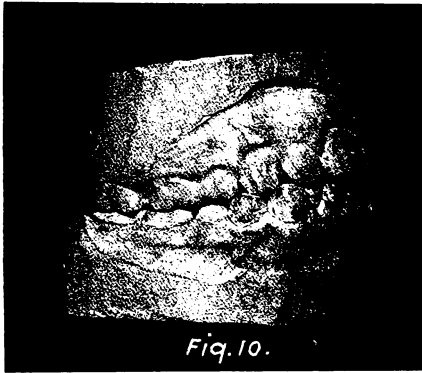
Fig. 9.

As will be noticed, the upper buccal teeth stand somewhat in advance of their natural positions, but the occlusion, while not really normal, is satisfactory both as to appearance and usefulness.

ITEMS OF INTEREST

**Cases 4 and 5.
Figs. 6 to 11.**

The next, Figs. 6, 7, 8, and 9, show the models of a brother and sister who presented themselves for treatment, at the same time. The boy was fifteen years of age, and the girl thirteen. The cases, as you see, are very similar in every respect. I decided to treat them dif-



ferently for the purpose of comparing the relative merits of extraction and non-extraction. In the upper arch of the boy, Fig. 6, the two first bicuspsids were extracted and the teeth aligned in the usual way. The girl's upper arch, Fig. 7, was expanded by means of the expansion arch and wire ligatures until a harmonious line was obtained. The girl's lower arch needed only a little expansion to rearrange the anterior teeth, but even with this it was found that the upper arch was unnaturally large and prominent. Both parents and operator were dissatisfied with

ORTHODONTIA

this result and as a consequence, the upper first bicuspid were removed and the arch again reduced in size to harmonize with the lower. Much valuable time was lost by this procedure, but the ultimate result was entirely satisfactory.

Figs. 8 and 9 show the new arrangement of the teeth and Figs. 10 and 11 the occlusion in both cases as it is today. The girl is still wearing a retaining appliance and the few teeth not yet in occlusion are gradually elongating and will soon meet.

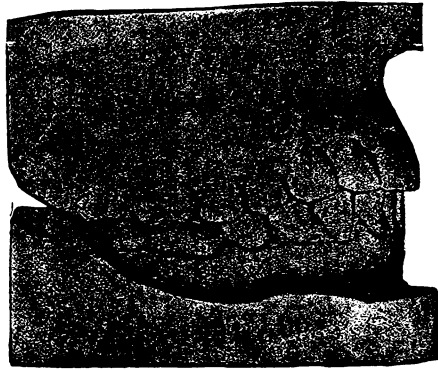


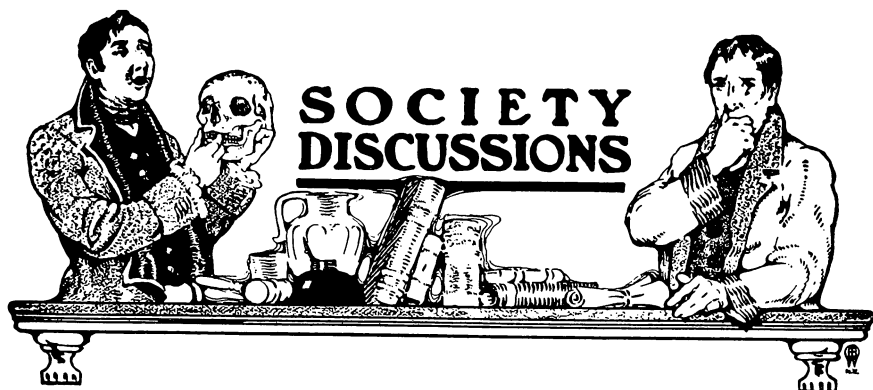
Fig. 14.

Case 6. **Figs. 12 and 13.**

Figs. 12 and 13 show the upper and lower teeth of a girl of twelve years old. She is a very large child for her years with correspondingly large alveolar arches, but the teeth are unusually small with spaces between nearly all of them. There is no protrusion either above or below and the facial outline is perfectly harmonious. No interference is called for and the writer is watching the case to note future developments.

I bring the case to your attention to show that large arches with small teeth do occur in the practice of everyone, although a recent writer tried to cast doubt upon the hypothesis of the inheritance of large jaws and small teeth vs. small jaws and large teeth, by wondering why it is that the small jaws with the large teeth occur to a far greater extent than the large jaws with the small teeth.

The last, Fig. 14, from Dr. Cryer's collection is introduced here not to encourage the extraction of the first molars, for it has become an obsolete practice, but to emphasize the fact that good results did sometimes follow the method, and that contrary to the teaching and practice of certain men today it has been possible to obtain virtually ideal occlusion with all of the first molars absent.



Second District Dental Society.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, February 13th, 1905, at the Kings County Medical Library Building, No. 1313 Bedford Avenue, Brooklyn, N. Y.

The President, Dr. Gould, occupied the chair and called the meeting to order.

Dr. H. A. Pullen, of Buffalo, read a paper on "Conservative Teachings of Occlusion."

He was followed by Dr. A. H. Guilford, of Philadelphia, who read a paper entitled "When Is Radical Treatment in Orthodontia Justifiable?"

Discussion.

Something has been said tonight about the cost of ideal orthodontia, and it is claimed that some cannot afford the fees. In regard to the fees, fix in your mind the value of a case that will occupy six months of your time. Let us say you value that at X. dollars. If you have a patient who rides up to your door in a 40-horse-power Panhard, charge him 3 X. dollars. Do not feel that you value the work at that amount, but that you owe it to a couple of poor children whose teeth you may wish to regulate without charge.

I will relate a pretty little story of the appreciation that men so rarely get. I took a case once from a wealthy man who was particularly careful to know in advance what the fee would be. I told him the charge would be X. dollars for that case, and I added "I will make a beautiful girl out of your daughter."

He replied: "I think that is impossible." I answered "I do not think so; there is no fault in her face except her mouth and that can be

SOCIETY DISCUSSIONS

remedied." I finished the case, and he paid the agreed price. He went to Europe with her in June.

About October, another girl was brought to me with identically the same condition; she only came in to have some teeth filled. I said "That girl's teeth must be regulated." There was a family conclave and they decided that they could not afford to have it done. I said "Well, I cannot afford to leave it undone. I will regulate them." Providence equalized matters. At Christmas the wealthy man, whose daughter's teeth I had regulated, sent me a letter in which he wrote: "We are so appreciative of the beauty of our daughter, that we are sending you a check for X. dollars in addition to your bill." When I say "X. dollars" of course you understand that I do so because it is not nice to speak about the amount of fees we receive. So you see after all I was paid for the regulation of the poor girl's teeth.

As a contribution to the discussion of the evening I will now show slides and give descriptions of the same, furnished by various orthodontists. The first contribution is from Dr. Angle. The language is his own.

Dr. Edw. Angle,
St. Louis. "Complying with your request I send you slides showing four cases of malocclusion before treatment, and also the changes in occlusion and facial lines incident to treatment. I have not selected simple cases, as you will see, but those, I think, fully as complex of their kind as any I have ever seen, in a busy practice for many years devoted exclusively to this work, and more so than any that appear in the literature on this subject.

"My object in selecting these particular cases is to offer them in defense of two statements that I made before the Stomatological Institute of your city on October 7, 1902, at which time I said that the full complement of teeth is absolutely essential, not only to normal occlusion and the proper function of the teeth, but to the correct development of the nasal tract and of the voice; and further, that the best balance, the best harmony, the best proportions of the mouth in its relations to the other features requires in all cases that there shall be the full complement of teeth, and that each tooth shall be made to occupy its normal position; and that these are essential, not in a few selected cases, but in *all* cases, unless it be in those so extremely rare that they are not worth discussing. After two and a half years more of busy practice and close observation, I am more convinced of the rarity of these exceptional cases; in fact I cannot find them.

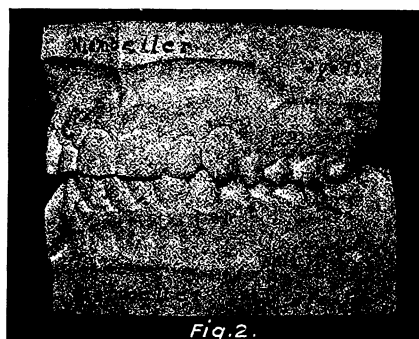
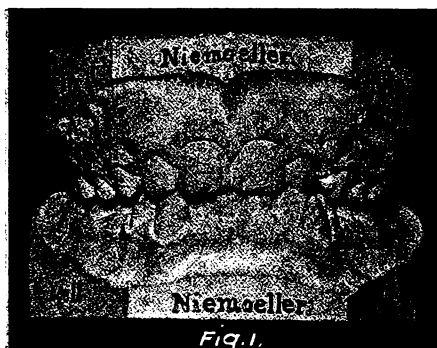
"I also said that the practice of sacrificing teeth for either the intended prevention or correction of malocclusion is not only wrong practice and fallacious teaching, but in proportion as it is practiced is as baneful, as far

ITEMS OF INTEREST

reaching in its results, and that it ought to be abandoned by all practitioners of even ordinary intelligence.

**New York
Not Progressive.**

"These statements and my position have been the occasion of much criticism from different members of the 'old school' of orthodontia, and I am glad, my dear Doctor, that the subject is again to be brought up for discussion in your city for I know of no other city in the United States where there is believed and practiced teaching so behind the times as in New York—not even Philadelphia. In proof of this I would call the attention of this meeting to the discussion of Drs. Jackson, Carr, and Messerschmitt (published in the October, 1904, *Cosmos*), of Dr. Cryer's paper read before the New York State Society, May 13, 1904. This paper offered bad arguments in defense of needlessly mutilating the dental apparatus, and the discussions



above referred to offered still worse arguments, but precisely the same thoughts which have emanated from your city at each annual thrashing of the subject for the past twenty-eight years. In substance they are the same defense of mutilation; the same ludicrous excuse for needless mutilation in the form of that time-honored fallacy of the child inheriting the large teeth of one parent and the small jaws of the other; and that other most baneful, yet wise, absurdity—the sacrifice of the four grandest jewels in the dental apparatus, the four first permanent molars, in order to help nature in her evolutionary process of the suppression of the teeth and shortening of the jaws. Think of it! Even far out here in the West among the Indians and train-robbers I know of no village where the latter doctrine has been seriously considered for at least twenty years.

"Still further, the latest work published on orthodontia from your city discusses and advocates the extraction of teeth, even lateral incisors,

SOCIETY DISCUSSIONS

as complacently as it does methods of treatment at least twenty years overdue.

"I hope the subject will have a fair discussion, and that as a result men will be induced to think—to reason, and if so even New York will be able to make a better showing in orthodontia in the future.

"One thing I would kindly ask of the opponents of the 'new school,' and that is that they be more fair in their evidence; that they will quit offering hypothetical cases, or the view of one side of badly made models with no profile pictures of the patients, but that on the contrary they will offer good pictures of the full profile of the face before and after treatment, and the same, also, of good models of the teeth in occlusion from both



sides, as well as the teeth from the occlusal aspect. No other evidence, it seems to me, should be accepted. I say that such evidence as they usually offer is as unfair as it is unscientific and behind the times.

Case 1.

(Fig. 1)—another of those instances where, according to the 'old school,' the parents haven't evened up squarely with the boy, but instead have given him the small jaws of one and the large teeth of the other, and at the same time furnished the odontocidally-inclined dentist a 'scientific' excuse for extraction in order to harmonize matters. But in the next picture (Fig. 2),

ITEMS OF INTEREST

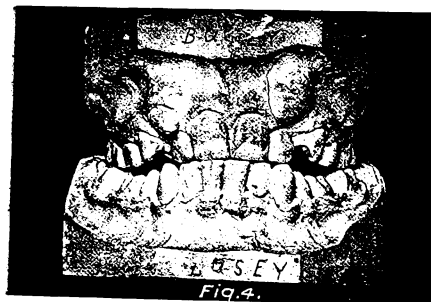


Fig. 4.

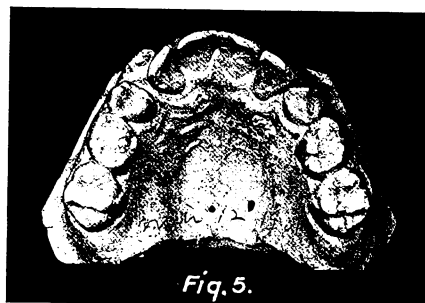


Fig. 5.



Fig. 6.

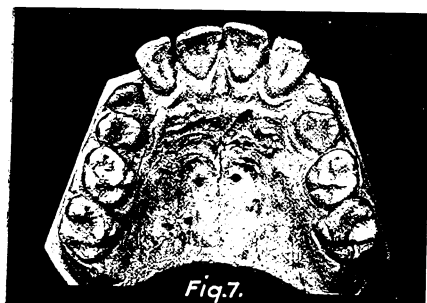


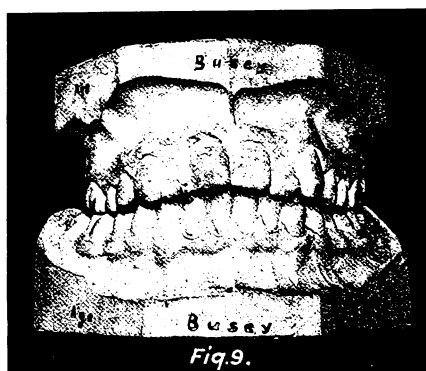
Fig. 7.



Fig. 8.

SOCIETY DISCUSSIONS

taken two and a half years later and after the correction of the malocclusion, I offer you another proof of the absurdities of such teachings and such practice, for here we see there is an abundance of room for the teeth, and the development of the alveolus, so much arrested in the first picture, is here shown to have been beautifully completed. The next picture (Fig. 3) shows the boy's face at this time, or at the age of fifteen, and you will notice that this face is in good balance though probably the lips are slightly out of balance, or too prominent, and so they should be with all boys with youth's faces and men's teeth. After awhile when nature has completed the development of that head and face I believe there will be the beautiful balance between the mouth and the rest of the features that God intended there should be.



Case 2.

"This picture (Fig. 4) represents the malocclusion in the case of a child twelve years of age where the deciduous cuspids were prematurely extracted 'just to make room, you know, for the permanent lateral incisors.' Result, the old story—arrested development of the intermaxillary bones, diminution in the size of the arch, no room for the permanent cuspids, about to erupt, and offering to the average 'old school' men a splendid opportunity for sacrificing the four first premolars, and to the extremists, the four first permanent molars; and to the country physicians, the lateral incisors. This it is plain to be seen, is only another instance of 'small jaws and large teeth' or inherited 'misfits.'

"The next picture (Fig. 5) shows the occlusal aspect of the upper model before treatment, and I would ask you to note that all of the pic-

ITEMS OF INTEREST

tures of models of cases I send you except one are taken the exact size of the models, and that the models are made from plaster impressions, hence truthful, in accordance with the unvarying practice of the 'new school' of orthodontists, and not from plastic impressions, as used by members of the 'old school.'²

"The next picture (Fig. 6) shows the profile of the patient before treatment, or what so-called science has done to the facial lines by the sacrifice of the deciduous cuspids.

"The next picture (Fig. 7) shows the occlusal aspect of the upper teeth three months later, after the incisors had been moved labially to make



room for the erupting cuspids. Please note the pronounced and abnormal angle of inclination which both roots and crowns of these teeth occupy at this stage. They were retained at this point, giving nature an opportunity to develop the intermaxillary bones, adjust the apices of the roots to the proper angle and erupt the cuspids.

"The next picture (Fig. 8) shows the occlusal aspect two years later, and the next (Fig. 9) the occlusion at this time, and you will please note how the alveolus has developed, carrying the teeth to nearly a normal, upright position, which I have every reason to believe will continue until it is normal.

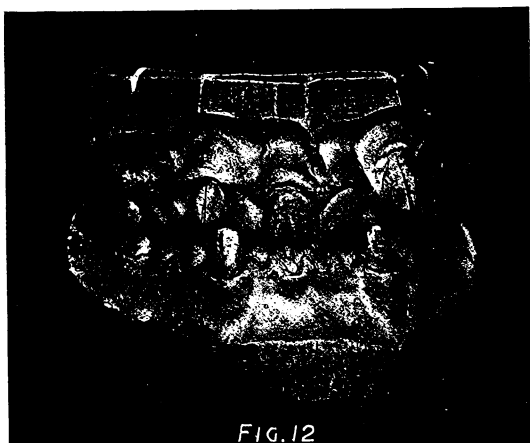
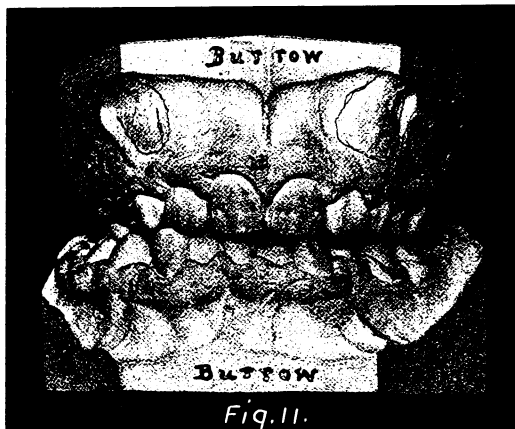
"The next picture (Fig. 10) shows the facial lines at this time, and

SOCIETY DISCUSSIONS

I would ask you to draw upon your imagination for what would have been the result on these facial lines had some disciple of the "old school" of odontocides been permitted to carry out his teachings.

Case 3.

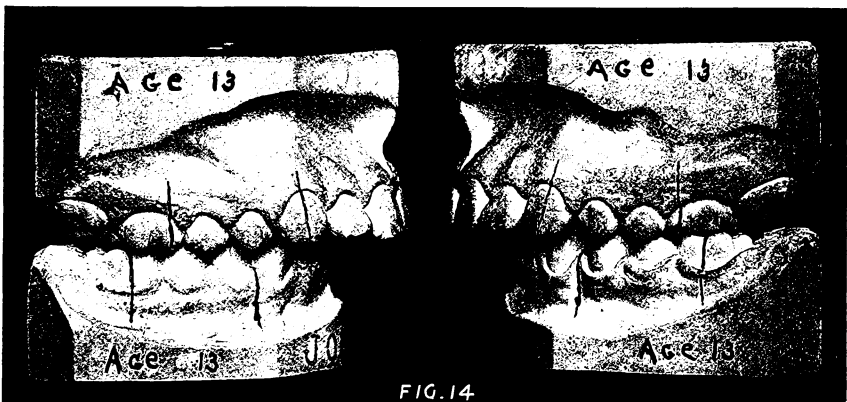
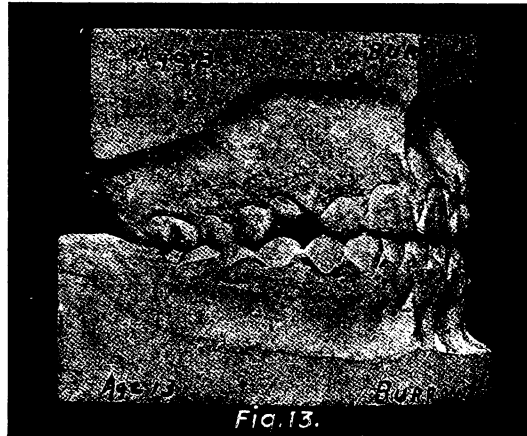
"The next picture (Fig. 11) shows the malocclusion in another case along the same line. The pencil markings show the positions of the un-



erupted cuspids. You have only to draw on your imaginations very slightly to picture the condition these teeth would occupy four years hence had the parents accepted that time-honored advice of dentists to wait until the child is fifteen years old before beginning treatment.

ITEMS OF INTEREST

"The next picture (Fig. 12), which illustrates another case, will show you what this case would probably have been very like had they waited, but they accepted what I think is better advice, such as should be given and accepted more commonly. The teeth already erupted were moved into correct occlusion, giving space for the cuspids to erupt and the



alveolus to develop, and the next picture (Fig. 13) shows where this is taking place in a most beautiful manner.

Case 4.

"And now for the last case which I shall submit, although I should like to offer you hundreds in further proof of the truthfulness of my position that the full complement of teeth is essential to normal occlusion, and that the full complement of teeth in normal occlusion is essential to the

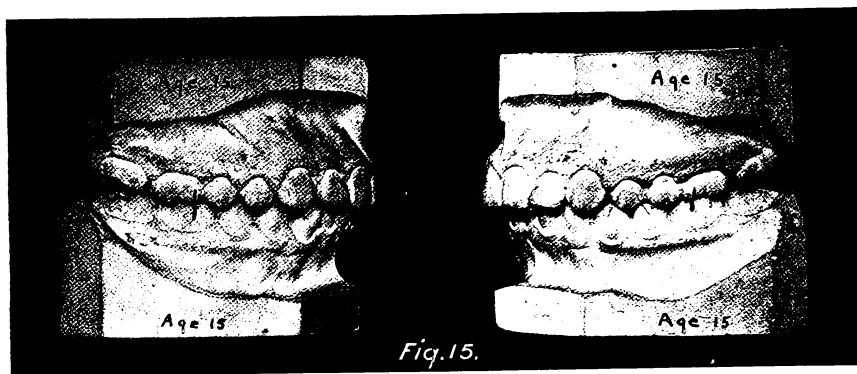
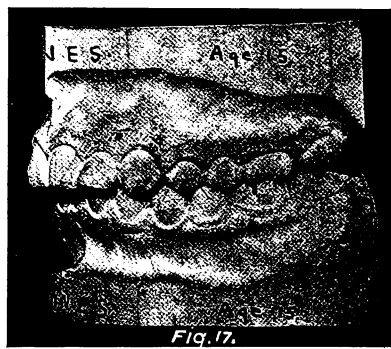
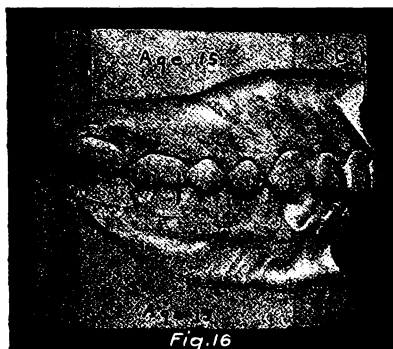


Fig. 18.



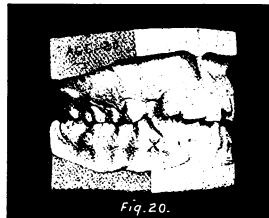
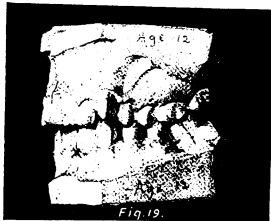
ITEMS OF INTEREST

best balance of the face. This is the most pronounced case I have yet treated that belongs to the next great class of malocclusion, or Division I, Class II. This picture (Fig. 14) shows the malocclusion from both right and left sides (reduced size), and you will note that all the lower teeth occlude distally to normal, and how pronounced is the protrusion of the upper teeth.

"The next picture (Fig. 15) shows study models of the teeth at the beginning of the period of retention, and the next two pictures (Figs. 16 and 17) show the occlusion from both right and left sides one year after all retaining devices had been removed. The next picture (Fig. 18) shows the facial lines before and after treatment."

Dr. Ottolengul.

Dr. Lloyd S. Lourie, of Chicago, contributes the following (Fig. 19): A boy for whom the left first molar had been extracted because it was thought impossible to save it, while the lower left central was extracted to correct an irregularity of the lower incisors two years before Dr. Lourie



saw the case. The boy was only thirteen when he reached Dr. Lourie. The twelfth year molar has drifted forward of normal. Note the abundance of space and then think of the extraction of that lower incisor. Also glance at the upper jaw, the regulation of which will require all the lower teeth if occlusion is to be restored.

Fig. 20 is from the mouth of a girl twenty years old, and is the result after two years of treatment by a prominent dentist. He removed the lower cuspid to facilitate his work and yet after two years the result as you see is far from satisfactory. Note the ruination of the occlusion, just where the cuspid was extracted.

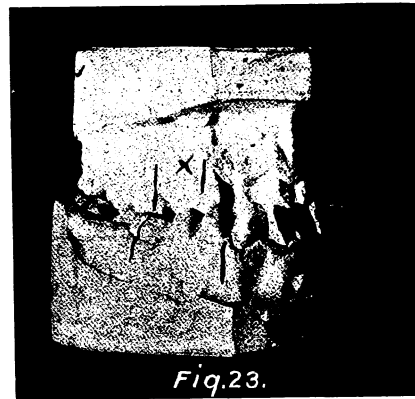
Fig. 21 shows the condition of a case sent to Dr. Lourie three months after the referring dentist had removed the bicuspid and had time to discover that he had obtained more room than he really needed.

The old idea of regulating teeth seemingly was to straighten out the evident crookednesses. The modern notion is to restore normal occlusion. It is highly needful therefore to have a proper concept of just what occlusion will be normal to the individual case. At the International Con-

SOCIETY DISCUSSIONS

gress, Dr. C. A. Hawley, after giving Dr. Bonwill credit for his method of arranging artificial teeth, in artificial dentures, so as to give the patient a more normal eating apparatus, than had been possible by means of the old hinge joint articulators, then proceeded to expound a method by which the orthodontist might determine with mathematical accuracy the true arch which should be occupied by a given set of natural teeth however crookedly placed prior to treatment. This method will be found described in an excerpt from his Congress paper, published in *ITEMS OF INTEREST* for November, 1904.

Dr. Hawley's contribution to the subject of the evening is made doubly interesting because in each case presented he has first figured out the shape and size of the arch which the teeth should occupy. This arch has been cut out of black cardboard and in the illustration appears as the background.

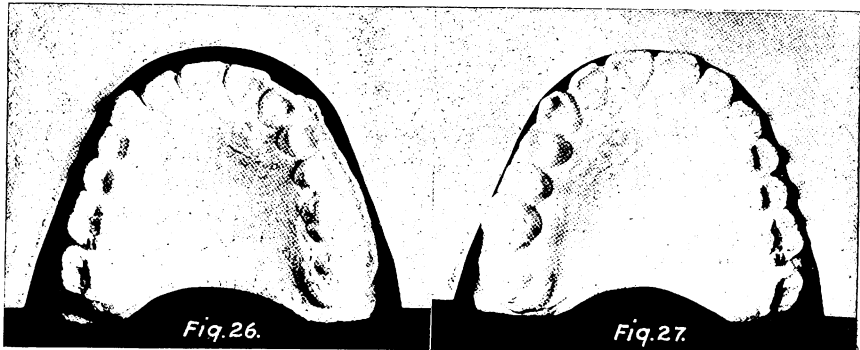
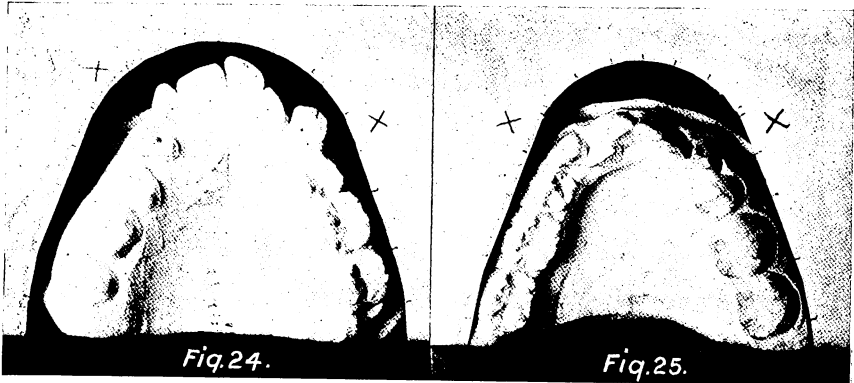


His first case (Fig. 22.) is from the mouth of a man 23 years old who was treated for *eighteen months*, beginning at the age of thirteen and the illustration shows the result obtained. Yet extraction is supposed to shorten the time of treatment. The missing bicuspid was extracted to relieve crowding. The black background shows the size and shape of the arch which would be normal to the size of the teeth under treatment and emphasizes the fact that no tooth could have been spared. The little lines extending out from the background show where each tooth should be. I have no hesitation in saying that with modern methods both this and the lower set of teeth could have been brought into normal relations without extraction, at the age of thirteen, probably within six months. Yet a tooth was sacrificed with the abominable result shown after eighteen months of effort. Fig. 23 shows the occluded models as Dr. Hawley

ITEMS OF INTEREST

found them, and only proves more conclusively the malpractice that was committed.

Fig. 24 shows the upper jaw of a girl aged eighteen, treated for a year when twelve. Note the black background indicating the normal arch. Fig. 25 is the lower jaw of same patient. The one upper and two lower bicusps had been extracted at the time. The upper cuspid is unerupted. The outlines of the face seem to indicate that the spaces were closed largely by moving the molars forward.



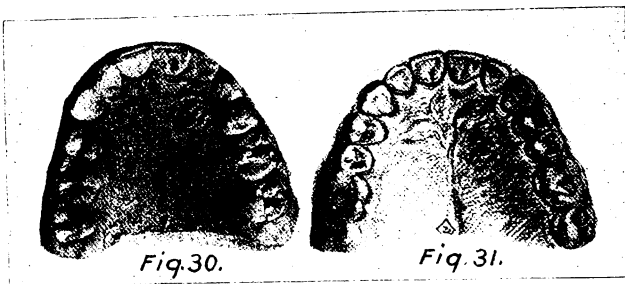
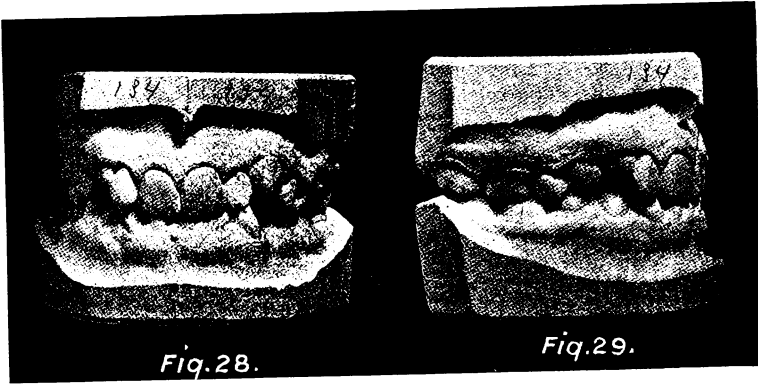
These, gentlemen, are cases which came to Dr. Hawley after the mutilation had occurred. It is pleasant to show you a case treated by himself. Fig. 26 shows an upper jaw; the cuspid is seen to be erupting entirely outside of the arch, with practically no space. Undoubtedly many would extract a bicuspid. The black background indicates the extent of the contraction of the arch. Fig. 27 shows the case as treated by Dr. Hawley, photographed with the same card background. It is seen that Dr. Hawley has brought every tooth out to his diagrammatic estimate of the true arch,

SOCIETY DISCUSSIONS

and thus found room for the cuspid. I think this beautiful result deserves your applause. (Hearty applause.)

We next have a series contributed by Dr. Milton T. Watson, of Detroit, with his descriptions of the same.

"Fig. 28 represents the mouth of a young woman eighteen years old who lost a lower left first bicuspid, and a lower right cuspid at about thirteen years of age. The teeth were perfectly sound but were extracted to



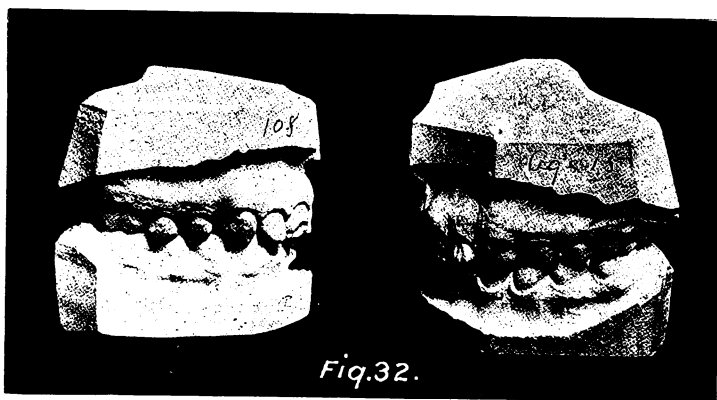
relieve a crowded condition of the lower anterior teeth. The lips were very muscular, and because of this pressure the teeth were rapidly carried backward into the spaces made by extracting and the uppers followed them. The spaces for the upper cuspids (Fig. 29) were thus encroached upon and they were unable to erupt completely, having remained in their present condition for some three or four years. The inharmony in the facial development was very apparent, making it desirable to open up the spaces—by carrying the teeth forward—and to replace the lost organs by bridge work.

"Fig. 30 represents an upper jaw from which the first bicuspids were removed at about twelve years of age, and the remaining teeth arranged

ITEMS OF INTEREST

symmetrically in a smaller arch than nature intended this individual to have. The case was associated with considerable nasal disturbance, which as we know now would have been somewhat relieved by widening the jaw to its normal condition, but by making the dental arch smaller this possible source of relief was lost and the nasal development never became normal.

"The facial development was quite perceptibly marred, the lips being deficient in comparison with the balance of the face. In a full face view the effect of the narrow jaws was also apparent. As might be expected



the lessened size of the jaws interfered to a marked degree with the voice.

"Fig. 31 is a drawing made for me by Dr. C. A. Hawley, of Columbus, Ohio, from accurate measurements and shows what the normal size of the jaw would have been if it had been enlarged to accommodate the irregular teeth instead of extracting them. In the light of the present day knowledge a man would be guilty of malpractice who would sacrifice a tooth in such a case, for there is not the slightest doubt that the child's breathing capacity has been permanently lessened to say nothing of the injury from an esthetic standpoint.

"Fig. 32 represents the mouth of a boy, fifteen years of age, whose first molars were all extracted five years before. They were badly broken down and the remaining portion of the roots abscessed and causing great discomfort. The present condition is, I believe, far better than the average case where these teeth have been lost but even so the evil influences are very apparent.

"The teeth are all separated, allowing food to be crowded between them to such an extent that it becomes a source of real discomfort, and the grinding capacity of the molars amount to almost nothing. The jaws have

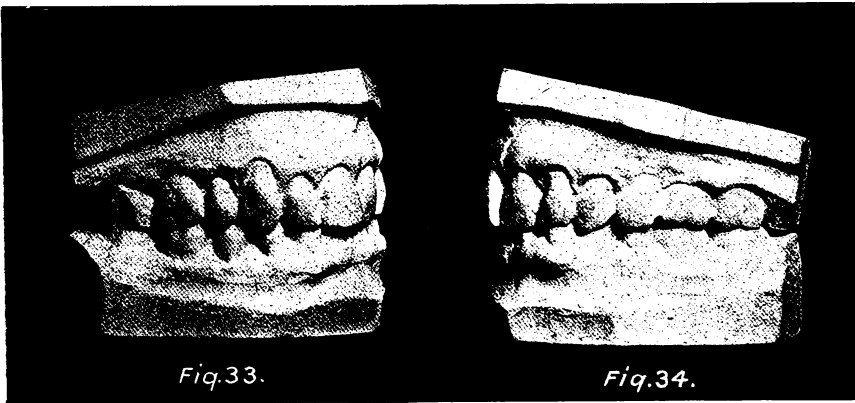
SOCIETY DISCUSSIONS

also failed to develop in length, as is very apparent from an examination of the face."

(Dr. Ottolengui then showed several slides contributed by Dr. A. H. Ketcham, of Denver, Colorado. The cases will be found described and fully illustrated in *ITEMS OF INTEREST* for August, 1904.)

Dr. Ottolengui.
(Continuing.)

I had not intended to show a case of my own, but as it happened that during the week a very interesting case came in, I could not resist the temptation of making models and presenting them tonight, because it affords me an opportunity to address you on this subject from a view-point which I thought no one else would take—that is, the result of extraction as viewed fifteen years after. In this case, a bicuspid was extracted from each side of the upper jaw in order to align outstanding cuspids. The cuspids in the lower jaw were also outstanding, and first one and then the



second of the central incisors of the lower jaw was removed in order to reduce that jaw and make room to bring in these cuspids. Fig. 33 shows one aspect of the occlusion fifteen years afterwards. Fig. 34 is the other side. I do not consider that any *occlusion* has been attained at all, especially on the left side, and right here I wish to make a point: I think the new school of orthodontia is making a mistake in using the words "normal occlusion." I think they should say "occlusion" and let that mean only one thing. Remember, that with the exception of the lower central incisors and the upper third molars every tooth in the jaws should occlude with two others; then study these pictures and tell me whether they do.

Dr. Farrar read a paper the other night, and supplied me with the term I need. He spoke of "Dental Antagonism versus Facial Beauty." Here we see dental *antagonism*, but it is not *occlusion*. Note the present

ITEMS OF INTEREST

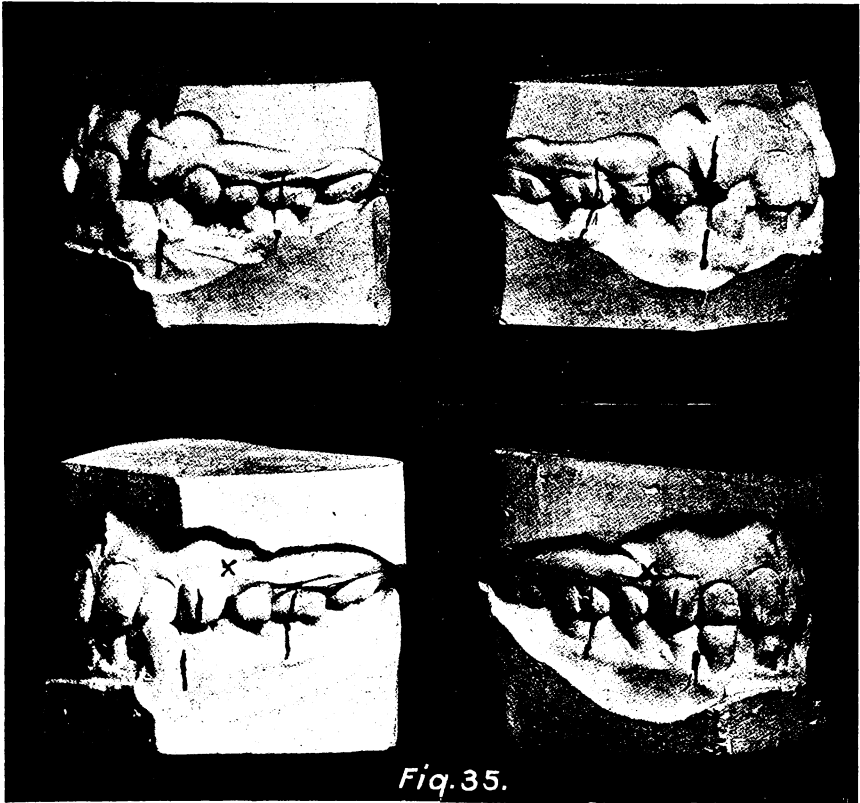


Fig. 35.

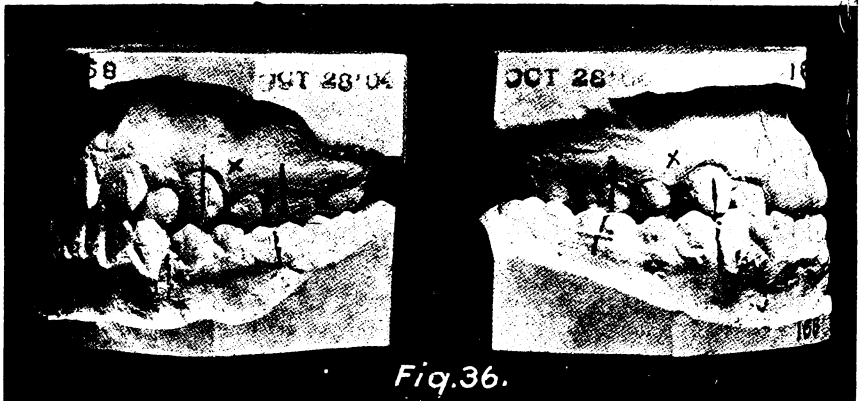


Fig. 36.

A decorative horizontal flourish with ornate scrollwork and floral motifs at both ends, framing the text "SOCIETY DISCUSSIONS".

SOCIETY DISCUSSIONS

state of the bite; the upper almost entirely hide from view the lower teeth. There have been other slides tonight like it; this extreme over bite is almost invariably the result of extracting and reducing arches. These were regulated when the child was fourteen years old. The lady is now thirty, and what has happened? Those teeth grinding on single antagonists, instead of occluding properly, have ground each other away like two mill-stones. The central incisors, and especially the lateral incisor, have been worn away on the lingual surface until they are absolutely denuded of enamel, and they are now carrying gold fillings in the little recesses where these lower teeth fitted in. Those fillings were inserted to stop further depredations. The lower bicuspid on that side, as would be seen if the bite were open, has a perfect impression of the upper cuspid on it; the enamel is entirely gone. The same wear and tear is going on with those molars. The left upper bicuspid is not a bicuspid at all; the bite split the natural tooth and what you see is a crown. Curiously enough, on the right side you will notice that the bite is not so abnormal; the antagonism is not so bad. There is a little leaning of tooth on tooth—six-sevenths on one and one-seventh on another, and exactly in that proportion is the difference in the wear and tear.

If I only had had the time to make the models I could show another example. A man forty years old, where there is exactly the same thing, more wear and tear on one side than another. In his early life, he had the bicuspid removed above and below, and all the enamel is worn off those teeth. You may satisfy the parent at the time—the child has nothing to say; but if you arrange teeth in antagonism, end to end, instead of occlusion that is what you invite fifteen years later.

**Dr.
Rodolf B. Stanley.**

Fig. 35 shows in the upper picture a case of mal-occlusion where the mesio-distal relation of the buccal teeth is correct. The dentist who had this in charge was going to expand those arches and make room for all the teeth. The patient passed out of his hands, went South, and when she came back the condition was as seen in the lower pictures. The upper first premolars on each side had been extracted. The cuspids were retracted, and the laterals were carried labially. Note the antagonism of the upper left lateral. There is two millimeters space between the cuspid and the second bicuspid on this side; on the other side the space is not quite as great; but you see how the superior left lateral is occluding with the lower cuspid and wearing it away? Possibly that was ground down by the dentist himself.

Fig. 36 shows a case I have under treatment now. The first premolar had been extracted to correct the crowded condition in the upper arch, and the dentist who was treating the case retracted the upper cuspids

ITEMS OF INTEREST

and drew out the lateral somewhat. On the other side you see there is a little more space. The treatment aims to close up the space by drawing the first molar and the second premolar forward, because there was no objection to an artificial substitute being put in, otherwise I would restore the upper arch to its normal size, as is being done with the lower.

My first slide will show perfect permanent and temporary occlusions (Fig. 37) at the ages of fourteen and five respectively. Here is the ideal towards which the orthodontist must aim. There is none higher nor better. Look at the beautiful arches and the interlocking of cusp with



cuspid. Note the separation between teeth of the temporary set, separation that means regularity in the permanent that is to follow.

Compare Fig. 37 with Fig. 38, see the mutilation that the dentist wrought before he knew what he was to do. Then the case was referred for treatment only to find that the mischief had been done and the only solution was the expansion of both arches and the later insertion of artificial teeth to replace the extracted ones.

Fig. 39 represents another case of extraction where none was indicated and where the loss of the bicuspid in the upper arch made the case impossible of correction without the insertion of artificial teeth. Here, too, the dentist extracted and referred the patient for treatment. When I first saw the condition I could hardly repress my feelings. Models were made and



ITEMS OF INTEREST

the patient dismissed for a week. During this time I consulted the referring dentist and pointed out the error of extraction and why I could not correct without replacing the missing teeth.

He said "The case looked like others that you corrected with extractions" and here is the key to the situation—"failure in diagnosis." The upper arch bore some resemblance to the other cases, but the two arches in relation to one another did not. I told the doctor that I should have to replace the teeth if I were to operate on the case or would not touch it, and asked him what I should do? He was man enough to say "Tell the patient the truth," which I did, and lost the case, as I expected.

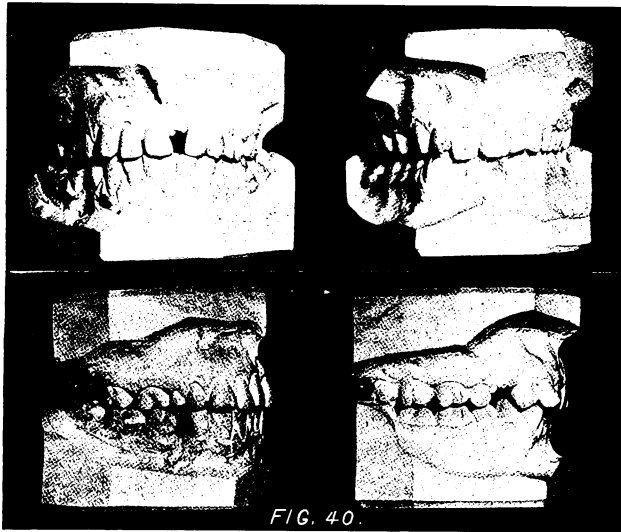


Fig. 40 shows other results of extraction and in the one instance where the central was extracted and the adjoining teeth pulled together, it shows how the space partially reopened in later years.

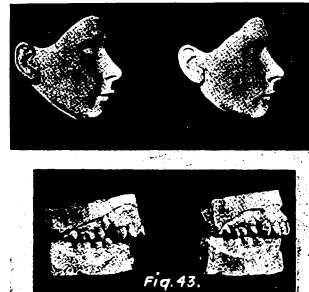
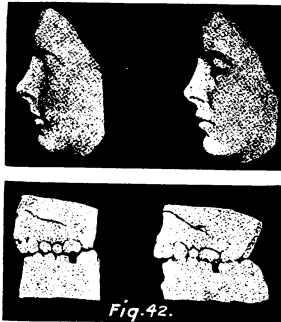
Fig. 41 illustrates what I consider one of my best results with extraction of the upper first bicuspid and the right lower first bicuspid. The result is good, but *is not what it would have been had there been no extraction*. The molar occlusion is faulty and the facial outline is not as full as it ought to be. How much better it would have been to have restored it to what Nature intended it to be!

Figs. 42 and 43 are taken from essays of Dr. C. S. Case, who has stood for conservative extraction. I have shown the results of my own extraction in at least one case and have criticised it, so that in criticising



ITEMS OF INTEREST

Dr. Case it must be understood that the criticism is of his operations and not of the man. Fig. 42 is from a photograph of a print of an essay read before the Odontological Society of N. Y. in which special attention is called to the esthetic appearance of the face after the treatment. Look closely at the occlusion and you will observe that it is not occlusion but merely antagonism. Look at the face after operation; it has a heavy line posterior to the nose and the lower lip has too great a depression in it. Before the operation, attention is called to the protrusion of the upper lip. Bicuspid were extracted and the roots of the upper cuspids and incisors were retruded. But *it was not necessary*. The face needed the filling out in the lower lip, and as proof let me point to the fact that the lower first molars had been lost and the lower teeth had shifted



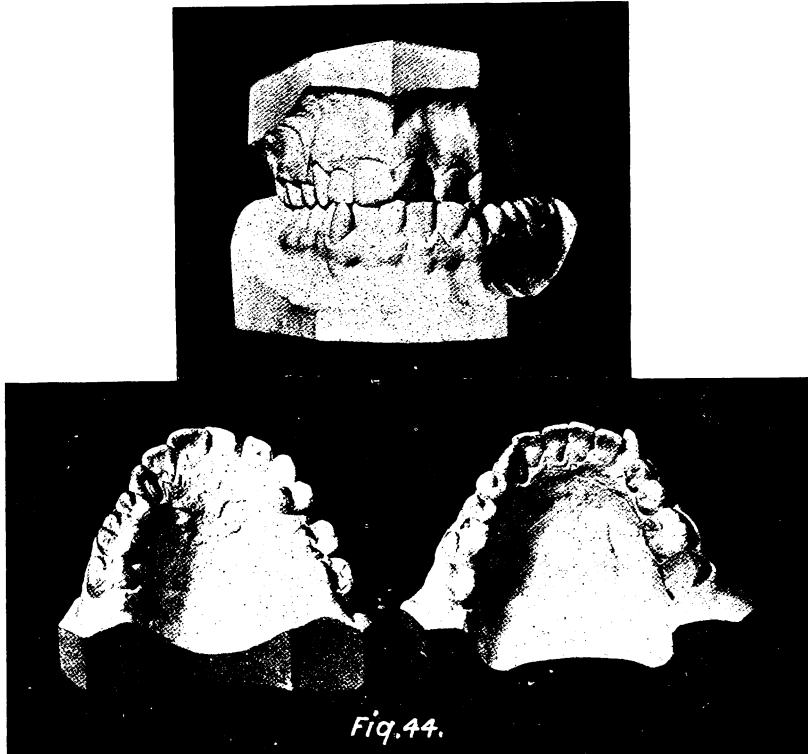
backwards. What this case needed was the expansion of the upper arch, also the lower and the insertion of artificial substitutes for those lost molars. *How much better the face would have been then.* Fig. 43 shows another case where the first upper bicuspid had been extracted and heavy molar and bicuspid anchorage had not been stationary enough to prevent a shifting forward. And yet the author claims that all the movement has been done in bringing backward the cuspids and the incisors. Look closely at the occlusion and see where the motion was. Look at the face! Is it refined? I say it is not. The profile is better but not so the contour. With the distal movement of the upper arch and the mesial shifting the lower, the face in this case would have the proper contour and profile.

These last figures are also a direct contradiction of Dr. Case's claim that classification of malocclusion should be based on the facial deformity produced. It is easy to fall into error from such a classification. Let us classify malocclusion from the teeth, and prove it up with the facial contour. Conservative extraction is a misnomer and leads to the loss of more

SOCIETY DISCUSSIONS

teeth than its fondest advocates dream of. If you must extract, let it be *only after you fail without extraction* and then call in another in consultation. From my slides and talk, you can see I agree heartily with Dr. Pullen, who has given us this excellent paper.

(Slides were then shown by Dr. G. A. Roberts, **Dr. C. H. Roberts.** of Toronto.) This is the case of a girl of sixteen (Fig. 44). The upper first bicuspid were extracted to relieve an overcrowded condition of the upper arch. The result was



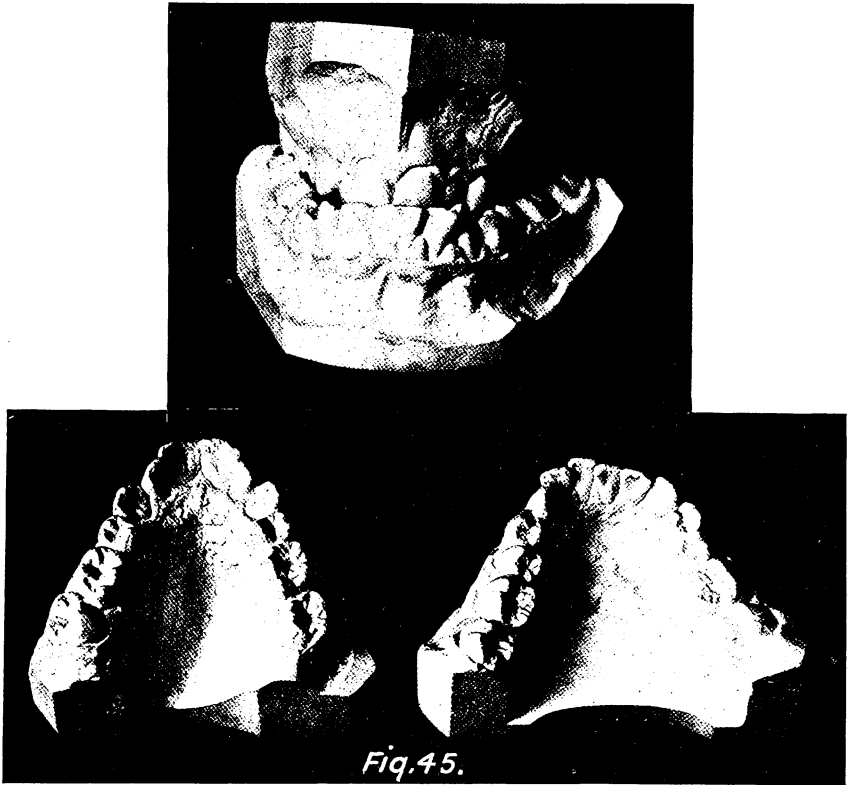
a shortening of the upper arch from before backward, as well as sufficient narrowing to cause the teeth on the upper left-hand side to occlude, or rather, antagonize lingually to normal with the lowers. I regret that I cannot present the photographs of the face, but they show a marked sunken condition in the region indicated by the loss of these teeth.

The teeth are the framework of the face, and if any of these organs are removed and the spaces closed up, either by Nature or by the dentist, the face suffers. We are given teeth which, when in their proper posi-

ITEMS OF INTEREST

tions in the mouth, harmonize in form and size with the other features of the face, and if by reason of irregularity or extraction, the arch is shortened, or narrowed, or both, the face does not have the harmony Nature intended it should have. And the longer the correction of the unnatural condition is delayed, and the younger the patient at the time of the mutilative treatment, the more disastrous the results on the mature face.

This is a girl of fifteen (Fig. 45). About four years ago the upper



first bicuspid were extracted "to relieve an overcrowded condition of the upper arch." The parents and the child both assure me that before this was done the upper teeth closed outside the lowers. Now, as you see, the entire upper arch is in lingual antagonism to the lower, the lower right side has drifted forward and toward the left, pushing the cuspid region out, so making a space of three-eighths of an inch, labio-lingually, between the upper and lower teeth at this point.

At first sight it seems incredible that such a change could follow in so

SOCIETY DISCUSSIONS

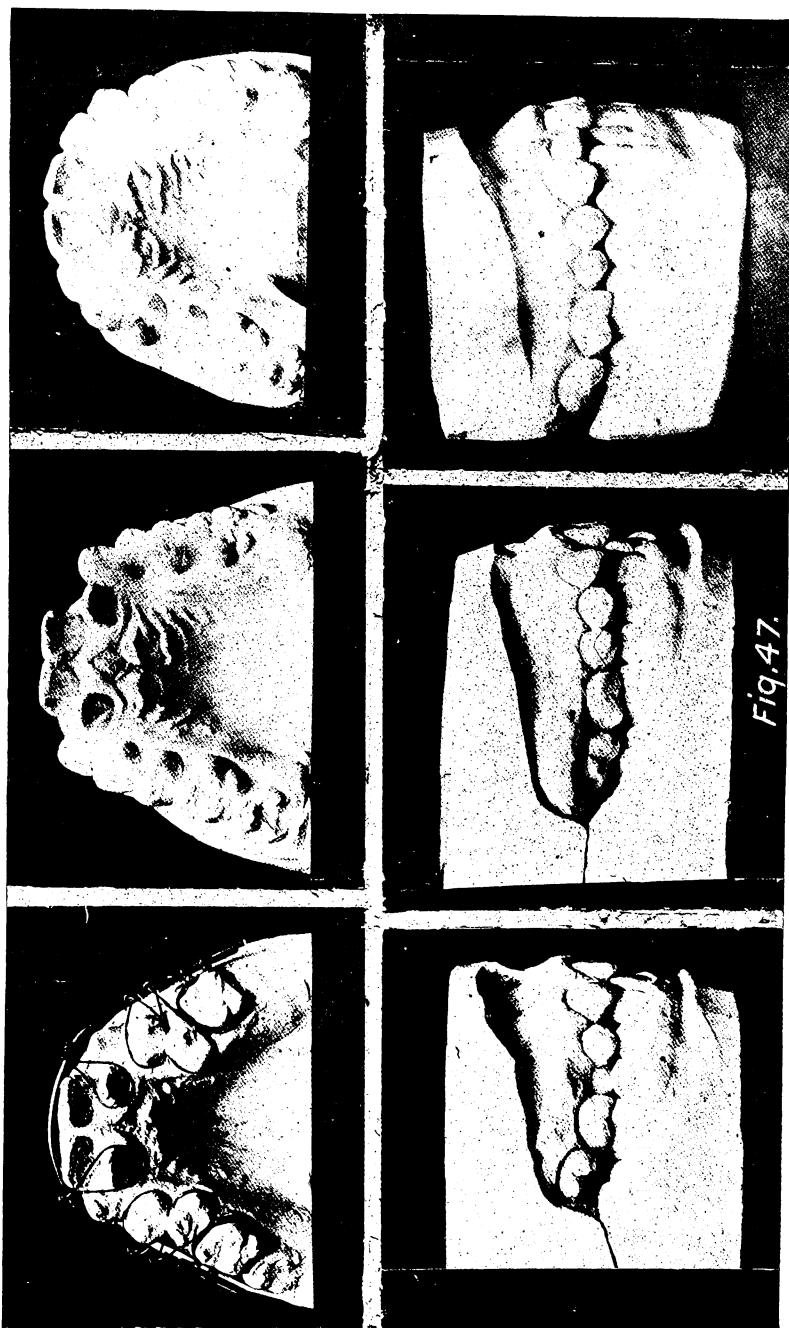
short a time, but if we discredit the statements of the parents and believe that the lower teeth were always in labial and buccal relation to the uppers, how could any sane man, much less an intelligent, conscientious dentist, of years of experience, extract two teeth from an arch that was already too small for its opponent? I think we are forced to believe the statements of the parents and the child, and that this disfigured face (Fig. 46) was caused by the extraction of those bicuspid. This no doubt is an exceptional case, but it shows what can occur and that we cannot be too careful in preserving the full complement of teeth if we would avoid a possibility of such direful results as are illustrated here. Looking at the morsal surfaces we see that so far as the upper teeth are concerned, the result



Fig. 46.

desired was practically attained, the spaces have quite closed up and the teeth are fairly regular. But the effect on the facial lines and the occlusion could not be much more disastrous.

Sometimes the general practitioner will excuse himself for a so-called easy way out of the difficulty by saying that the patient could not afford any extended operation. Here is such a case, and when the parents, who are very poor, came to me, they told me their financial condition frankly and the mother said she would go out to wash all winter if that would help to raise the necessary money. If we cannot do what is *best*, would it not be better to leave the cases alone?



SOCIETY DISCUSSIONS

The following are from Dr. G. S. Goddard, of San Francisco. I read his own description and comments: "I enclose photographs of a case (Fig. 47) treated by expansion of the arch, and by use of the Case or Baker anchorage which, a few years ago, I would have unhesitatingly treated by extraction.

"At the same time I treated another case that was much like the second stage of this. I used the same treatment, but when I was through the question arose in my mind whether I would have done better if I had extracted the upper first premolars or perhaps all four of the first premolars. I wonder if there will be room for the third molars. The child will grow and I hope she will catch up with her teeth.

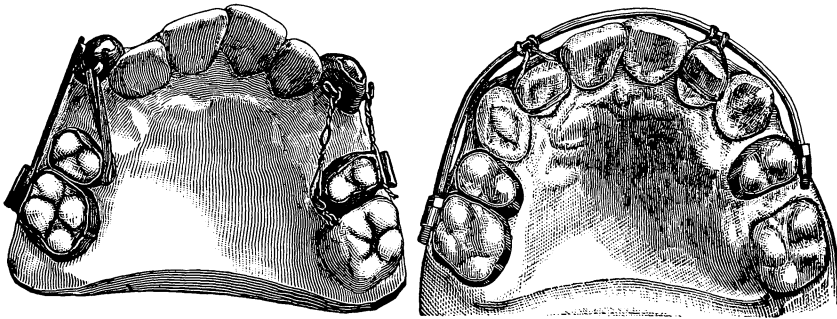


Fig. 48.

"Since that time Dr. Cryer has raised the same question about causing impaction of the third molars by moving the molars backward. Time will tell.

"I send you now the only photographs (Fig. 48) that I can find just now showing the benefit of extraction.

"It is a case of distal malocclusion, as you will see, due probably to early loss of upper deciduous molars and a crowding forward of the permanent first molar. It was treated by extraction, both upper first bicuspid and drawing the posterior teeth forward. It is an old case and is shown in Figs. 726 and 729 of the second edition of Kirk's Operative Dentistry. The interlocking of the cusps is just as good (or will be when the upper bicuspid erupts a little further) as if the bicuspid and molar had been forced back to make room for the canine. The treatment was much simpler. If we get a good interlocking of the cusps and thus a 'good masticating occlusion' I care not whether we have a full number of bicuspid or not."

ITEMS OF INTEREST

You have discussed tonight both sides of a very interesting subject. There are men here who hold opposite views. The problem of whether or not to extract seems to depend upon whether or not there will be room in the

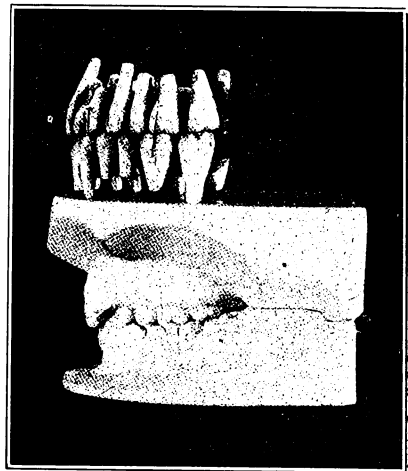
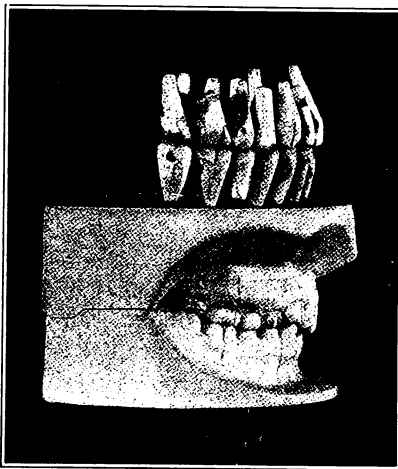


Fig. 49.

arches for the retention of all teeth. In order to definitely determine this point before starting the real work of correction, I will call your attention to a principle which all can readily understand. This is exactness based on scientific lines. In Fig. 49 we have three views of a case of

SOCIETY DISCUSSIONS

irregularity which was presented to me last summer. In any such case an extra model is made from which the individual teeth are cut with a general representation of their roots, and these are rearranged in ideal alignment as shown on top of the models in the illustration. It is made into a diagnosis, or if you please a prognosis model. By studying such a model we not only see exactly where each tooth should be placed in order to have the most perfect occlusion, but we can determine absolutely whether or not there be room in the arches for all of the teeth.

Fig. 50 shows two views of another case. In this instance it will be observed that the diagnosis models have been completed by filling plaster around the roots. In this case, as can be plainly seen in the profile models, the occlusion has been entirely destroyed by the extraction of

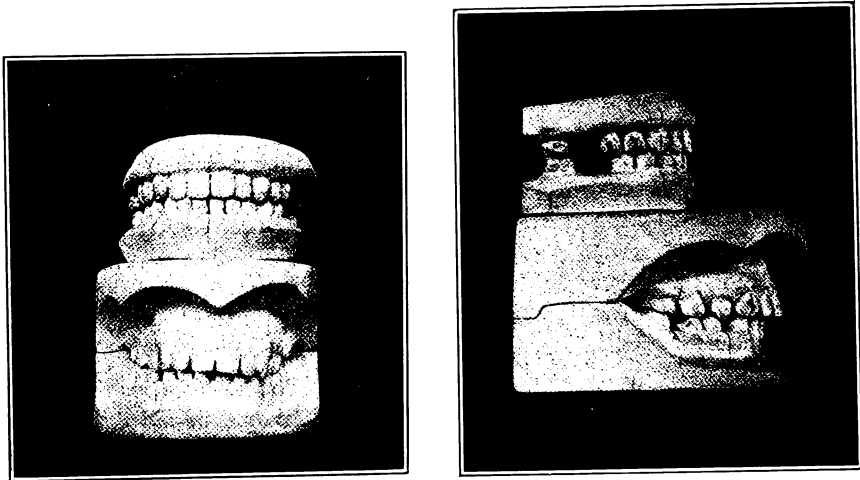


Fig. 50.

the four first molars, the opposite side of the jaw being quite as bad as that shown. It is to be noted that in the arrangement of the teeth, as seen in the diagnosis models, space is left for replacing the lost organs, the twelfth-year molars being moved to their true position, it being my view that normal occlusion can be obtained only when each tooth is in its proper place.

President Gould.

I will ask Dr. V. H. Jackson, of New York, to take up the other side of the discussion.

Dr. V. H. Jackson.

It is a question whether the gentlemen want to hear the other side discussed. There are many phases to this subject that require a reply, but I will



ITEMS OF INTEREST

only touch briefly upon some of them this evening. Dr. Guilford put a pertinent question when he asked what would be done if the teeth on one side had moved forward in the line of the arch and not those on the other. It has not been answered.

Why do not we take up actual practice, showing apparatus, when we are discussing these matters? Why do we pick out the best models and use them as typical cases to represent our practice? It is a mistake. It is leading men into difficulties.

Dr. Angle has made some strange statements. If the gentlemen will read my writings, they will see that years ago I pointed out the injurious effects of adenoid growths, recommending their early removal, and that I laid out a plan so that we would not be led into difficulties and be obliged to extract teeth. I described the pterygoid processes as fixed points anterior to which all development of the superior arch takes place, providing room for the erupting teeth. Between the ages of two and one-half and six years the jaw grows forward the width of the first permanent or sixth year molars. After the first permanent molar, for instance, is extracted, what is there to encourage the anterior development of the jaw until the time for the eruption of the second and third molars? It was described by me and will be found in the *Dental Cosmos* of 1890, page 282. There is also a chart describing how the arches develop from the smaller to the larger: for instance, the child's arch to that of the adult, showing the changes that take place in development, bringing about the normal, the abnormal, the saddle and the V-shaped arch.

Who pointed out before the Angle school existed that the arch should be expanded early, and that each irregular tooth should be aided to take a correct position while erupting? Dr. Guilford included that in his textbook as a statement from Dr. Jackson. Who put before you a method of expanding the upper and lower arch of the child without pain or discomfort to the patient, doing away with the cumbersome jack-screw and ligatures that cut into the gum? Who was it, gentlemen, that pointed out the way to preserve records that would not be misleading, by taking impressions of appliances in the mouth from which models are made showing just how work is accomplished?

I want it understood that I do not advise extraction of teeth except where it is absolutely necessary. No specialist can save all of the teeth in all cases and give the most satisfactory result to the patient without extraction. I am amazed that any specialist should say that he extracts in no case. If he practices the extreme expansion required in some cases to get all of the teeth into the arch, he is creating a greater deformity than previously existed and leaving work for others. Who is to keep up

SOCIETY DISCUSSIONS

the continued retention of the teeth in those cases to prevent them from becoming crimped again? Any man who has had much experience in regulating teeth knows that with the adult, after extreme expansion of the arch, there is generally a corresponding tendency to contraction.

I thought that the subject of extraction would be discussed this evening, and I have with me models of a case of prominent teeth that was operated upon after the method recommended by some of the gentlemen here. The dentist had been advised that extraction should not be resorted to. It will be seen that in the effort to accommodate all of the teeth by expanding the arches laterally that none of the teeth occlude well and the deformity is greatly magnified. The molars and bicuspid are tipped outward, occluding only on their palatal cusps, and even with this lateral expansion, in order to make space for the anterior teeth, the crowns of the latter were forced outward to an angle of about forty-five degrees, causing an aggravated prominence of the lips, and a conspicuous deformity of the features that the parents would not tolerate. The dentist came to me in his difficulty and I advised him to extract the first bicuspid and contract the arches.

Regarding the extraction of teeth for the purpose of regulating, if the gentlemen will read in my book, the chapter on Extraction of Teeth that Dr. Angle refers to in his letter, they will see that I state I have never extracted an incisor in the upper arch, and urge the preservation of all the teeth, and speak especially of the first permanent molars. I do not believe in removing any teeth that can be saved. We are serving the patient, and if we are true surgeons, we will serve them to the best of our ability—that is, to get the best result. You cannot do this without extraction in certain cases.

I did not come here to antagonize these papers, but after the statements that have been made, I would ask some gentleman to tell us what is the New School of Orthodontia? Does it include regulating with jack-screw, bands and expansion arch with ligatures similar to methods used forty or fifty years ago? I have done a great deal of regulating and I am surprised that any of the pictures of models and faces shown here should be described as unusual cases.

You are told to spend a good deal of time preparing models from plaster impressions. Dr. Angle's method of regulating and mine are entirely different. A model made from an accurate impression in compound is usually sufficient for making appliances after my system, with a great saving of time.

Dr. Angle says that no one but a specialist should do regulating. From my standpoint every dentist should have a knowledge of regulating



ITEMS OF INTEREST

teeth. He should be a general practitioner as a general practitioner in medicine. He should be able to diagnose and tell what needs to be done for the patient. Every man should have that knowledge. He should be taught in the dental college. Dr. Angle thinks he should not be taught it there. I claim he should have a general knowledge of orthodontia, and if he does not care to practice it, understanding the requirements, he can better advise his patients when recommending them to a specialist. According to some I am not a specialist. They say a man is not a specialist if he does any dental work other than regulating. In my office I have a chair for orthodontia and one for operative work. Why can I not carry on both?

I used the screw and band many years, and used ligatures considerably in some of my early work, but I found I could accomplish results with less outlay and more ease to the patient with the system I have devised. I can see fully six times as many patients now as with the other systems. Patients do not have to visit me every one or two days for me to turn a screw-nut or see that a ligature does not slip and press into the gum, but rather, I see them on an average about once a week.

Dr. Ottolengui has made some statements regarding extraction. What would Dr. Ottolengui do in a case like the one shown in the models presented?

Dr. Ottolengui. There was a false diagnosis made in this case in the first place. The jaw enlarged as it has been, but not by the Angle method.

Dr. J. C. Young, Detroit. I have spent a very pleasant and profitable evening. There are several points I noticed which have not been spoken of at all. One point I wish to make while it is fresh in my mind was alluded to by Dr. Jackson, when he spoke of scar tissue in bone, and the tendency to contract and pull the teeth back. There is no question about that; but if we properly proceed in regulating teeth and establish occlusion, we have no scar tissue. What is required to bring about occlusion in a proper manner is to simply use enough force to cause stimulation—not enough to injure the process, which would give you scar tissue. The mistake has been in trying to do things too rapidly.

There has not been enough stress laid on the effect of malocclusion on the nasal passage. Just call to mind that first slide of Dr. Hawley, with the black background. The young man was about eighteen or nineteen years old. What must be the effect of that crowded condition on those nasal passages? We all know that children do not breathe through

SOCIETY DISCUSSIONS

the mouth if they have a proper nasal passage to breathe through. Mouth breathing is not a habit; it is a necessity.

When should we begin to take care of children to prevent malocclusion? It was beautifully shown on the screen to-night how the deciduous teeth space out at four years of age. I say to you that if that does not occur in a child of four years, you can look for malocclusion. Do not wait for Nature because there has been an interruption of development, and there is a cause for it; more than likely there is some disturbance in the mucous membrane of the nasal passage.

Dr. Jackson, you have shown a beautiful case where you treated a protrusion of the deciduous teeth, and I venture to say you got a better result than any man ever did who waited until such a child was twelve or fourteen years of age. It is a well-known fact that very little pressure or stimulation at the age of four or five will accomplish more than ten times—I might say fifty times—that amount of stimulation later in life.

Another well-known fact—the histologists have proved it—is that the alveolar process around the deciduous tooth is absorbed along with the root of the deciduous tooth and new process develops around the permanent tooth. How much better that process must be if the jaws are so widened by applying force to the deciduous teeth—and it is not necessary to wear a plate to do that, nor a crib plate, nor a skeleton plate. We would simply put a piece of wire not bigger than the body of an ordinary pin between the incisors of the lower jaw. Drill little pits in the deciduous cuspids (they will be lost anyway) and simply pinch it once a month. My own little girl would come to me and say: "Papa, my teeth hurt," and I would pinch the little wire and she would go away happy. It has been continually advocated and preached to the patient: "Wait; let Nature act," but Nature is not doing those things. I make this statement, and I will defy contradiction—that if those methods that I have just suggested are carried out, barring monstrosities, there is never a case where it is necessary to extract a permanent tooth; and when there is normal occlusion you will have no difficulty in retaining the teeth.

Dr. Angle is not the man who is afraid to acknowledge his failures. He has shown time and time again that where the teeth are extracted you never get normal occlusion. Look at the pictures shown on the screen to-night of those mutilated cases and the wear of the teeth. We all must acknowledge that if the teeth are in occlusion that the wear is nothing compared to what it is where the teeth have been ruined. Why should men come here and present one model of a set as any evidence of what that case was and what was done? There is no excuse for it at all. If we have models of the upper and lower teeth, we can see what was done.

ITEMS OF INTEREST

I had occasion to call on Dr. Jackson some seven or eight years ago for advice, and he gave me good advice. I doubt whether there are five men in the United States that can take Dr. Jackson's system of regulating teeth, using their fingers, and bend those wires to get the results Dr. Jackson gains.

Dr. Jackson.

Ask men here in Brooklyn about that.

Dr. Young.

Your own brother said: "My brother is a genius; he bends a spring here and a spring there and they go wherever he wants them to; but I cannot seem to do it."

There was another point brought up, and that was the loss of the mesio-distal diameters of the deciduous molars as a cause of malocclusion of the permanent set. You can determine it by measuring, that the mesio-distal diameter of the deciduous molars is equal to the mesio-distal diameter of the bicuspid. It would seem that it is not so; but it is an optical delusion, owing to the square shape of the deciduous molars and the round shape of the bicuspid. If there has been any decay on those deciduous molars, and the first permanent molar comes in wedging forward, it crowds up and you lessen your space. That is a point well to remember.

Dr. Ottolengui.

Do you not think that in the practice of filling the deciduous teeth, it is better to fill from one tooth across to the other with gutta-percha, and allow that to act as a wedge? If it is at the end of the arch you might fill with amalgam; but if you want to bridge across, use gutta-percha.

Dr. Young.

Yes, bridge across or separate to get the contour of those teeth. I have some beautiful specimens, one of a little girl who came into my hands when she was four years of age. I took care of her deciduous teeth, and once while I was on my vacation she came to have her teeth taken care of. Not finding me at home she went to some one else, who took out the lower baby molar on the left side; you can see the result on the second bicuspid.

Dr. Jackson.

I would like the Doctor to look up the literature and see who was the first dentist to speak of the effect the abnormal arch has on the nares.

**Dr. Rogers,
Fall River.**

The ground has been pretty well covered. We are not antagonizing Dr. Jackson; we are here to help orthodontia and humanity, and are working for the interests of our little patients. Let us not forget that. If we can stay here all night to decide those points, and argue this case before this jury of men and convince them that extraction has been

SOCIETY DISCUSSIONS

condemned, we have done our duty and a service to humanity. Arguments have been presented pro and con. I am sorry more speakers have not taken up the side of extraction. It is not done as much as it was. Once we used to extract laterals and molars; now we have gotten down to bicuspid. Not many years ago a gentleman brought his daughter to me to have her teeth regulated and asked me how I would do it. I said: "There are two methods—one is a short method which leads to results very quickly; the other is a longer method." I knew Dr. Angle's teachings then, but I was afraid to use it. I said to the gentleman: "I would advise the short method." He said he did not want his daughter to lose the tooth. I took the road that led to a bitter spring, and I have regretted it ever since. Since that time I have learned the road to the crystal spring, of which we need not be ashamed. You can judge by the results which have been shown on the screen—results which have been attained with every tooth in the mouth. Dr. Jackson seems to think these are selected cases. He is mistaken. If he goes to Detroit and Buffalo and St. Louis, let him visit any of those orthodontists, and if he does not find at least seventy-five per cent of these cases as represented here tonight, I will admit I am wrong. I am sure of my ground, and I say that five years hence Dr. Guilford and Dr. Jackson will stand before you and say: Gentlemen, at that time we were wrong. Today we will not extract a bicuspid except in monstrosities." That day is coming, and I want you to mark my words that it will be within five years. These men are honest men. Merely to look at Dr. Guilford we know he is in earnest; but he is pleading for a wrong cause. He has lost his case before the jury tonight. There is hardly a man in this room who is not convinced that the day of occlusion is here, and here to stay. Some men have made the statement that the mouth was too full. That case was shown nicely on the screen where the statement was made that they were the teeth of a man and the face of a youth; in a few years when that youth grows to manhood there will be a change in the face. Let us get down to facts. Do not let us antagonize each other, but remember we are fighting for a great principle, and we will stand by that principle, come what may.

Referring to the paper of Dr. Guilford, I would
Dr. Pullen. ask you to note the questioning attitude which he takes in the matter of extraction. In the beginning of his paper he remarks that he wishes to correct the popular misapprehension of his being given credit for indulging in the practice of extraction far more than the facts would justify, and if his presentation this evening represents the facts, I am afraid the popular misapprehension in this particular will be increased instead of diminished, for he has given



ITEMS OF INTEREST

himself over to the extraction method in almost every case which he has presented.

In almost identical cases in which Dr. Guilford has extracted, as shown on the screen, the advocates of occlusion have restored the normal and ideal without extraction.

It is easy to be critical, you may say, but what have the students of occlusion to offer in lieu of the rules for extraction which have been honored by time only, and principally past time, for the present and future have something more exact, scientific and practical to suggest in the guidance of the practitioner who is in doubt as to the question of extraction.

Occlusion as a basis of diagnosis of malocclusion suggests restoration of normal size and shape of both upper and lower arches and restoration to normal alignment and occlusion of every maloccluding tooth.

The treatment necessary to accomplish this result requires less complicated appliances and the operation is much less fatiguing than if any teeth were extracted and the arches still further contracted.

Extraction to gain space is a false doctrine, and its unnecessary infliction is apparent in the first case, in which Dr. Guilford notes that extraction is justifiable—*e. g.*, “where the upper and lower teeth on one side of the arch are in normal position and relation, while on the other side we find a cuspid standing entirely outside of the arch with no space in the arch for its accommodation.”

There were illustrated in my paper several of these cases treated without extraction, obtaining the ideal result in every case. These cases require skill, but do not tax the patient nearly as much as the old method of extraction and patching up the occlusion.

It has also been the common experience of the advocates of occlusion that “unnatural fulness” of the lips is not caused by regaining space for the cuspid on one or both sides of the arch, and retaining the full complement of teeth, as illustrated in the profile picture of the boy whose teeth were pictured in my paper with both upper cuspids outstanding, or in labial occlusion.

The extraction of the four first bicuspids in any case would certainly be considered criminal malpractice by the orthodontist who studies these cases from the standpoint of occlusion.

Most of the cases which Dr. Guilford illustrated show so little knowledge of occlusion and its beneficent laws, that we should hardly feel called upon to criticize his methods so severely were it not for the position he holds in the profession as an authority in orthodontia, and the influence which his statements might have upon those of the profes-

SOCIETY DISCUSSIONS

sion who are looking to the text-books on this subject for their enlightenment.

The principles of occlusion are too firmly established to become shattered by any such defense of old-time doctrine.

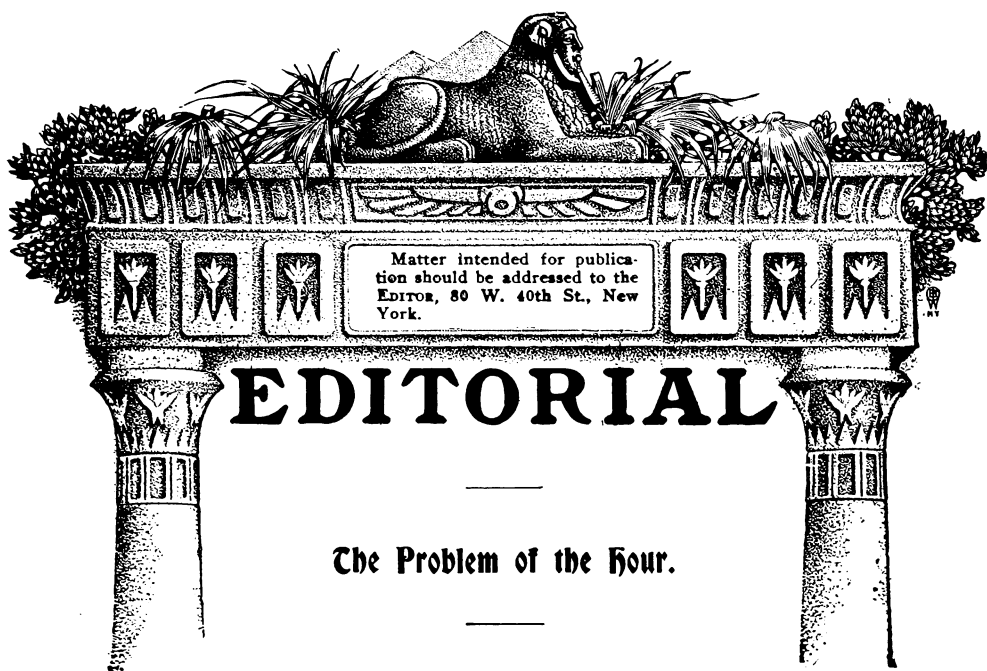
I have been waiting for this evening for the last five years, knowing that the time would come, sooner or later, when the authors of text-books advocating extraction to the extent which those now on the market do, with one or two exceptions, must be called to account for their lack of progress along these lines.

The word extremist hardly applies to the advocate of occlusal restoration, for he does not say "never extract." There are cases of monstrosities of dentition, supernumeraries and a very exceptional case in which the occlusal restoration is impossible of accomplishment; then he admits the wisdom of extraction, but never in any case in which the facial lines would be rendered less pleasing than they would be without it.

It is apparent to the students of occlusion who are present that the case which Dr. Jackson presented as evidence of the art of the practitioner who attempted to restore occlusion was originally treated by an amateur, and if one of more experience in occlusal restoration had undertaken the case, an ideal result might have been secured. Certainly, extraction was contra-indicated in the subsequent treatment of the case as performed by Dr. Jackson, according to the opinion of the advocates of occlusion, who are present and have examined the case.

We are willing to stand by our results, trusting that the older authorities on orthodontia will meet us on the same ground, rather than to place themselves in the position of wilful ignorance and disregard of the principles of normal occlusion which have placed orthodontia upon a plane which it never before reached, and which admit of such wonderful possibilities in the way of treatment of malocclusion that the inexperienced may well be mystified as to the magical power which will accomplish such results.





It has been our custom annually to offer a special number dealing with the most pregnant subject of the time. This year the problem under discussion is of such vast importance that a single issue did not suffice. Last month we gave space to Dr. Calvin S. Case, and this month both the old and the new school orthodontists exploit their opinions as to the advisability of extracting teeth in connection with treatment of malocclusion. In some respects the papers and their discussion, with their illustrations, serve as a reply to some points raised by Dr. Case, and such reply is all the more interesting since the authors had publicly expressed themselves prior to the appearance of Dr. Case's paper.

One point we would call prominently to the attention of our readers. The material was not prepared for the delectation of the orthodontists. On the contrary, the purpose was to offer to the general practitioner a résumé of the present status of the question of extraction, and it is therefore to the general practitioner that the contents of this issue, with its extraordinary liberal number of illustrations, is especially addressed: